D H E C

PROMOTE PROTECT PROSPER

Assessment Directive

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MAR 09 2007

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

Re: One Stop (Former SC-576), 201 N. Mine St., McCormick, SC
UST Permit #06443; CA #24044; MWA #UMW-19046
Release reported December 13, 1989
Monitoring report received February 18, 2005
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site using Terracon as your contractor. The report indicates several monitoring wells are dry and that the dissolved-phase plume remains undefined. Therefore, the Program requests that monitoring wells MW-4, MW-7B, MW-10, MW-11 and MW-22 be replaced, and three additional monitoring wells (two shallow and one deep) be installed to define the plume in the areas indicated on the enclosed site map. In an effort to construct the new and replacement monitoring wells such that they can be reasonably anticipated to bracket the water table in the future, well screens should be fifteen (15) to twenty (20) feet in length (as dictated by historical groundwater elevation levels) since the wells at this site have a history of cycling between dry periods and periods of submerged well screens. **If additional wells are found to be destroyed or dry, please contact me prior to collecting groundwater samples.** The new wells and all existing monitoring wells should be sampled for BTEX, naphthalene, MtBE and 1,2-DCA by EPA method 8260 and for EDB by EPA method 8011 (note that the required detection limit for EDB is 0.02 ppb). Please request low detection limits on all analyses. Wells with free-phase petroleum product should be gauged to determine product thickness in the wells, if there is no measurable free phase product a sample should be collected from the well. These data will be used to determine cleanup levels for active corrective action at this site. Costs have also been approved for completion of an updated receptor survey and a tax map with associated property owner/land use information. **Tax map information is required for this scope of work.**

Cost Agreement #24044 has been approved in the amount shown on the enclosed cost agreement form for the field screening, monitoring well installation and sampling. The necessary monitoring well approval is enclosed. Please have your contractor submit results to the Program in an assessment report containing information stipulated in the monitoring well approval and the following items:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Program, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well.

UST PROGRAM
DOCKETING #

- Field screening/soil boring logs, monitoring well record forms and groundwater screening results should be included in the appendix.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

Terracon can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

The assessment report and invoice are due within ninety (90) days from the date of this letter. An interim invoice may not be submitted for this scope of work. If the invoice is not submitted within one hundred and twenty (120) days from the date of this letter, monies allocated to pay for the work will be uncommitted. This means that invoices for the scope of work submitted after the 120-day deadline will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated costs must be pre-approved by the Department for the costs to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The Program grants pre-approval for transportation of virgin petroleum-contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on-site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or groundwater.

On all correspondence concerning this site, please reference UST Permit #06443 and CA #24044. If there are any questions concerning this project, please contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or by email at utzst@dhec.sc.gov.

Sincerely,

Sonya T. Utz, Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Site map
Approved cost agreement
Monitoring well approval

cc: Terracon Consultants, Inc., 521 Clemson Rd, Columbia, SC 29229 (w/enc & original site map)
Dale Surrett, McCormick County Administrator, Rt.2 Box 84AAA, McCormick, SC 29835 (w/o enc)
Technical file (w/enc)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Approval

Approval is hereby granted to:	Terracon Consultants, Inc.
(On behalf of):	Crown Central Petroleum
Facility:	One Stop, 201 N. Mine St., McCormick , SC
UST Permit Number:	06443
County:	**McCormick**

This approval is for the installation of up to seven shallow and on deep groundwater-monitoring wells. The monitoring wells are to be installed in the approved locations. Monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.

2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.

3. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted to the Department within 30 days after well completion or abandonment unless another schedule has been approved by the Department. The form should contain the "as-built" construction details a nd all other information required by R.61-71.H.1.f

4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Department within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.

5. If any of the information provided to the Department changes, notification to Sonya Utz, the project manager (tel: (803) 896-6649 or e-mail: utzst@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.

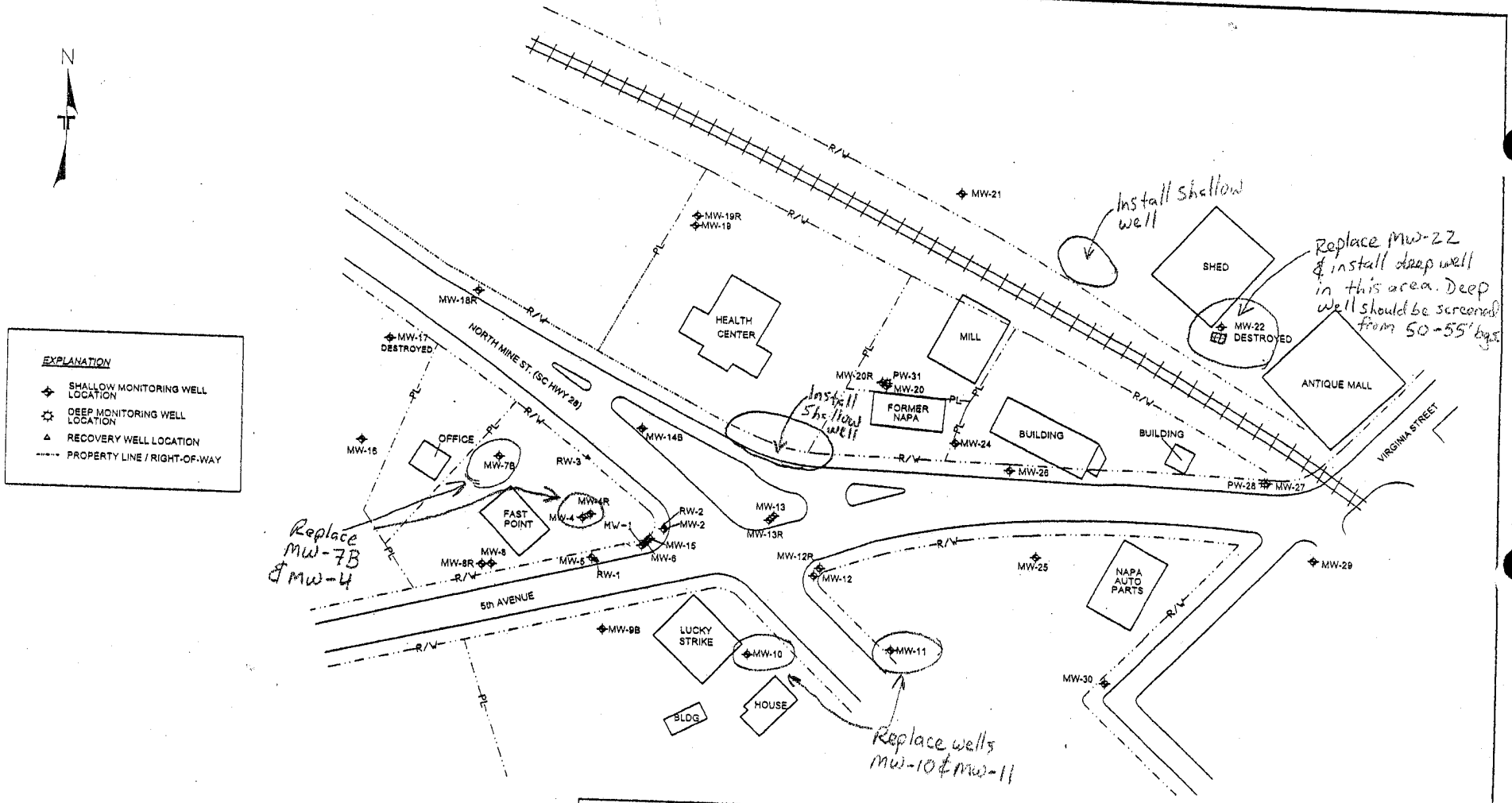
6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.

7. Departmental approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issuance: **February 15, 2007** **Approval #:** **UMW-19043**

Sonya T. Utz, Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management



THIS DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

SITE PLAN

FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

PROJECT NO.	FIGURE
73048013	2
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc.

Approved Cost Agreement [redacted]044

Facility: 06443 ONE STOP
UTZST
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
01 PLAN					
		B TAX MAPS	1.0000	50.00	50.00
02 RECEPTOR SURVEY					
		RECEPTOR SURVEY	1.0000	500.00	500.00
04 MOB/DEMOB					
		A EQUIPMENT	1.0000	550.00	550.00
		B PERSONNEL	4.0000	275.00	1,100.00
09 WELL INSTALLATION					
		B WATER TABLE (DRILLED)	240.0000	38.00	9,120.00
		C TELESCOPING	55.0000	58.00	3,190.00
10 SAMPLE COLLECTION					
		A GROUND WATER	5.0000	55.00	275.00
		D GROUNDWATER NO-PURGE	22.0000	35.00	770.00
		E GAUGE WELL ONLY	7.0000	20.00	140.00
11 ANALYSES	GW GROUNDWATER				
		A BTEX+NAPTH+MTBE	27.0000	100.00	2,700.00
		F EDB	27.0000	55.00	1,485.00
16 SUBSEQUENT SURVEY					
		SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL					
		A1 WASTEWATER - PURGING/SAMPLING	3.0000	90.00	270.00
		C SOIL (TREATMENT/DISPOSAL)	15.0000	50.00	750.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	21,160.00	3,174.00
			Total Amount		24,334.00

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

JUN 09 2008

MR. JIM JANSON
CROWN CENTRAL, LLC.
1 N CHARLES STREET STE 2000
BALTIMORE, MD 21201-3759

Re: GWS
One Stop, 201 N Mine St., McCormick
UST Permit #06443; CA#32458
Release reported December 13, 1989
AFVR Report received May 15, 2008
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the report submitted by Terracon Consultants, Inc. and determined the next necessary scope of work to be a comprehensive groundwater-sampling event to obtain current data.

Cost Agreement #32458 has been approved in the amount shown on the enclosed cost agreement form for the sampling. Samples should be collected from all monitoring wells and water supply wells associated with the release and analyzed for BTEX, Naphthalene, and 1,2-DCA by EPA Method 8260. Analyses for PAH's should be included as well. Please note that previously installed monitoring wells which bracket the water table do not require purging prior to sample collection.

Please have your contractor submit groundwater-sampling results to the Program in a monitoring report containing the following items:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Program, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- Monitoring well log for the newly installed well.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well location.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

10 feet

UST DOCKET

Your contractor can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

A Report of Findings and invoice are due within 60 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Department for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum-impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report. If the COC concentrations, based on laboratory analysis, are below Risk Based Screening Levels (RBSLs), please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence concerning this site, please reference UST Permit #06443 and CA #32458. If there are any questions concerning this project, please contact me at (803) 896-6649, via email at jasperta@dhec.sc.gov or by fax at (803) 896-6245.

Sincerely,

Tiffany A. Jaspers, Hydrogeologist
Southwestern SC Corrective Action Section
Assessment & Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management

enc: Approved Cost Agreement

cc: Terracon Consultants, Inc., 521 Clemson Rd, Columbia, SC 29229(w/ enc.)
Technical File (w/o enc.)

Approved Cost Agreement 32458

Facility: 06443 ONE STOP
JASPERTA
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		B PERSONNEL	4.0000	275.00	1,100.00
10 SAMPLE COLLECTION					
		A GROUND WATER	1.0000	55.00	55.00
		C WATER SUPPLY	2.0000	25.00	50.00
		D GROUNDWATER NO-PURGE	26.0000	35.00	910.00
11 ANALYSES					
	GW GROUNDWATER	A BTEX+NAPTH+MTBE	29.0000	100.00	2,900.00
		BB 1,2-DCA	29.0000	10.75	311.75
		D GW PAH'S	29.0000	120.00	3,480.00
17 DISPOSAL					
		A1 WASTEWATER - PURGING/SAMPLING	2.0000	90.00	180.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	8,986.75	1,348.01
			Total Amount		10,334.76

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

JUN 30 2008

Re: **AFVR Directive**
One Stop, 201 N Mine St, McCormick, SC
UST Permit #06443; CA#32775
Release reported December 13, 1989
AFVR report received May 15, 2008
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced report and determined the next necessary scope of work to be two Aggressive Fluid Vapor Recovery (AFVR) events each on monitoring wells MW-1, MW-2, and MW-32. There should be one event on the three wells requested, followed by a second event thirty (30) days after. Off-gas treatment will also be necessary.

Cost Agreement #32775 has been approved in the amount shown on the enclosed cost agreement form for the aforementioned scope of work. The AFVR activities may proceed immediately upon receipt of this letter. The report submitted at the completion of these activities should include the following:

- A narrative portion documenting the AFVR event noting site conditions, the name of the AFVR contractor, field personnel, date, time the AFVR event started and ended, ambient air temperature, and general weather conditions during the AFVR event.
- A brief description of the completed work scope and any relevant descriptions pertaining to the data tables.
- A table summarizing the airflow (in CFM) and volatile air emissions concentrations collected from the stack of the truck every thirty minutes through the duration of the event. The table shall also document which well(s) were being recovered from during that time interval.
- A table summarizing the magnehelic gauge measurements from all applicable wells on a thirty-minute time interval.
- The total volume of water recovered (gallons).
- The total volume of free phase product recovered (typically measured with a product/water interface device inserted into the top of the tanker at the completion of the event and then converted to an approximate volume).
- The total weight of petroleum removed as vapor. This is calculated based on the airflow rate and the concentration of vapor.
- A table documenting the free product thickness in each well before and after the recovery event.
- Scaled base map depicting the location of the extraction wells and the surrounding wells equipped with magnehelic gauges.
- Recovered free phase petroleum and groundwater must be accepted by a permitted treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report.

UST DOCKET 11tech

Terracon can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 60 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Program is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Program for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum impacted groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report.

On all correspondence concerning this site, please reference **UST Permit #06443 and CA #32775.** If there are any questions concerning this project, please contact me at (803) 896-6649 or by email at jasperta@dhec.sc.gov

Sincerely,

Tiffany A. Jaspers, Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229 (w/ enc)
Technical File (w/o enc)

Approved Cost Agreement 32775

Facility: 06443 ONE STOP
JASPERTA
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		A EQUIPMENT	1.0000	550.00	550.00
		B PERSONNEL	1.0000	275.00	275.00
17 DISPOSAL					
		A2 WASTEWATER - PUMPING TEST	3,000.0000	0.60	1,800.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	9,185.00	1,377.75
23 EFR					
		A 8 HOUR EVENT	2.0000	3,000.00	6,000.00
		C OFF GAS TREATMENT	16.0000	35.00	560.00
			Total Amount		10,562.75

RECEIVED
Tiffany
JUL 09 2008
UNDERGROUND STORAGE
TANK PROGRAM

GROUNDWATER ASSESSMENT REPORT
FAST POINT (FORMER SC-576)

201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST Permit # 06443

Prepared for:

Crown Central LLC
P.O. Box 1168
Baltimore, Maryland 21203

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

July 8, 2008
Terracon Project No. 73058013

UST DOCKET
12 Filed

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

July 8, 2008

Ms. Tiffany Jaspers
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: **Groundwater Assessment Report**
Fast Point (Former SC-576)
201 N. Mine Street
McCormick, South Carolina
UST Permit No. 06443; CA #32458
Terracon Project No. 73058013

Dear Ms. Jaspers:

On behalf of Crown Central LLC, **Terracon Consultants, Inc. (Terracon)** is pleased to submit this Groundwater Assessment Report for the Fast Point (former SC-576) site located at 201 North Mine Street, McCormick, South Carolina. If you have any questions regarding the contents of this report, or if there is a need for further information, please contact us.

Respectfully submitted,

Terracon Consultants, Inc.

Melissa Roberts, P.G.
Staff Geologist
SC Registration No. 2485

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

Enclosures

cc: Jim Janson / Crown Central LLC.

TABLE OF CONTENTS

GROUNDWATER ASSESSMENT REPORT
Fast Point (Former SC-576)
201 North Mine Street
McCormick, South Carolina
Terracon Project No. 73058013

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4.0	CONCLUSIONS AND RECOMMENDATIONS	4

FIGURES

1 Site Location Map
2 Site Map
3 Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
4 Potentiometric Surface Map of the Intermediate Portion of the Shallow Aquifer
5 Benzene / MTBE Concentration Map

TABLES

1 Ground Water Elevation Data
2 Ground Water Analytical Data - Petroleum Compounds
3 Ground Water Analytical Data - Polycyclic Aromatic Hydrocarbon (PAH) Compounds

APPENDICES

A Ground Water Sampling Logs
B Chemical Analytical Data
C Disposal Manifest

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed the groundwater assessment at the Fast Point (former SC-576) site located at 201 North Mine Street, McCormick, South Carolina. The purpose of the assessment was to evaluate the current groundwater quality conditions from a release of petroleum hydrocarbons previously reported at the site. The work was performed in accordance with the SCDHEC cost agreement # 32458 dated June 6, 2008 and the Risk Based Corrective Action (RBCA) guidance document prepared by SCDHEC, dated May 15, 2001. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Facility Information

UST Permit #: **06443**

Facility Name: Fast Point (Former SC-576)
201 N. Mine Street
McCormick, South Carolina

UST Owner: One Stop
Sahjanand Inc.
813 E. Gold Street
McCormick, SC

Property Owner: Mahesh Patel
2811 Reidville Road
Spartanburg, SC 29301
(864) 205-8777 mobile

1.2 Site Description

The site currently operates as the Fast Point convenience store and gas station. The site consists of a retail convenience store and an underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat

north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.3 Facility History

Previous assessments have identified petroleum hydrocarbons in free phase and dissolved phase at this site. Free product previously has been detected in nine wells located within 150 feet of the source area. The dissolved plume has impacted both the water table portion (19-35 feet) and the intermediate portion (50-57 feet) of the shallow aquifer. Deep monitoring well MW-15, located within the source area and screened from 125 to 130 feet depth, has also been affected by dissolved petroleum compounds. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area.

Terracon performed additional assessment at the site in June 2007. As part of this assessment, two permanent Type-II monitoring wells (MW-31 and MW-32) were drilled downgradient of the site, one replacement well (MW-10R) was installed to replace dry well MW-10, and a double-cased well (MW-22D) was installed to delineate the plume in the deeper portion of the shallow aquifer (Figure 2). The subsequent groundwater sampling event indicated the presence of free product in monitoring wells MW-1, MW-2, MW-5, MW-4R, and MW-13R. The free product plume extended offsite approximately 200 feet downgradient of the source area. Hydrocarbon impact in the upper portion of the shallow aquifer downgradient extended approximately 700 feet to the northeast from the UST system.

Two AVFR events were performed at this site in December 2007 to remove free-phase product from the subsurface. On December 9, 2007, Event #1 was performed on monitoring wells MW-1 and MW-2. On December 10, 2007, Event #2 was performed on monitoring wells MW-4R and MW-5. A combined total of approximately 2,563 pounds of volatile organic compounds (VOCs) were removed from the subsurface, and a combined total of approximately 219.8 pounds of VOCs were emitted to the atmosphere.

Terracon performed additional AVFR events at this site in April 2008. On April 10, 2008, Event #3 was performed on monitoring wells MW-1 and MW-2. On April 11, 2008, Event #4 was performed on monitoring wells MW-4R and MW-5. A combined total of approximately 1,083 pounds of volatile organic compounds (VOCs) were removed from the subsurface, and a combined total of approximately 311 pounds of VOCs were emitted to the atmosphere.

Based on the results of the assessment and AFVR events to date, the SCDHEC requested a comprehensive groundwater sampling event as the next scope of work. This report includes a summary of the field methods utilized along with the results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

2.0 GROUND WATER SAMPLING AND ANALYSES

Water levels were measured in existing site monitoring wells using an electric water level indicator on June 17, 2008. The water level data was converted to elevations relative to top of casing (TOC) elevations. A summary of the water level data is presented in Table 1. Potentiometric surface maps of the upper and intermediate/deep portions of the shallow aquifer are included as Figures 4 and 5, respectively.

Four wells (MW-4, MW-4R, MW-7B, MW-11) were dry or had insufficient water to sample. Six wells (MW-1, MW-2, MW-5, MW-20, MW-20R, and MW-32) had measurable thicknesses of free product and were not sampled. Nine (9) monitoring wells MW-6, MW-12R, MW-13R, MW-19R, MW-22D, MW-24, PW-26, PW-28, and PW-31) were purged fully prior to sampling because the water table was not bracketed by the screened interval of the well. Two (2) monitoring wells, MW-15 and MW-33, were purged to near dryness prior to sampling. Grab samples were collected from the remaining 13 wells (MW-8R, MW-9B, MW-10R, MW-14B, MW-16, MW-18R, MW-21, MW-22, MW-25, MW-26, MW-27, MW-29, MW-30) where the screened intervals bracketed the water table. MW-19 was damaged (bent below surface grade) and could not be sampled.

All ground water samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, methyl tert-butyl ether (MTBE), and 1,2-dichlororethane (1,2-DCA) by EPA Method 8260B and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C. A summary of the ground water quality data from the monitoring wells is presented in Table 2 (Petroleum Compounds) and Table 3 (PAHs). The laboratory analytical reports and chain-of-custody forms are included in Appendix B.

Purge water generated during sampling was collected in 55-gallon drums and disposed by Diversified Recycling, Rock Hill, SC. The waste disposal manifest is included in Appendix C.

3.0 ASSESSMENT RESULTS

Ground water occurs within the shallow aquifer under unconfined conditions at depths ranging from approximately 19.1 feet to 34.0 feet across the study area. Inspection of Table 1 indicates the ground water elevations, in general, were approximately 0.8 feet to 3.4 feet lower than the elevations recorded during the previous ground water sampling event (June 2007). Potentiometric surface maps of the upper and intermediate portions of the shallow aquifer are included as Figures 3 and 4, respectively. Inspection of Figure 3 indicates shallow groundwater potentiometric surface highs northwest of the site and in the vicinity of the library producing a cumulative flow direction to the southeast. Figure 4 indicates that ground water flow in the intermediate portion of the aquifer is toward the east-southeast.

Free product was detected in on-site monitoring wells MW-1 (> 3.0 feet), MW-2 (1.00 feet), and MW-5 (0.90 feet). The free product thickness at monitoring well MW-1 increased since June 2007 while the thickness at monitoring well MW-2 decreased. Free product was detected in monitoring well MW-4R during the June 2006; this well was dry and did not contain product during the June 2008 sampling event. The product thickness measured at monitoring well MW-5 was similar to measurement recorded in June 2007.

Free product also was detected in off-site monitoring wells MW-20 (0.73 feet), MW-20R (0.25 feet), and MW-32 (2.25 feet). Although free product was observed historically in monitoring well MW-20, free product was absent in June 2007; product measured 0.73 feet thick in June 2008. Replacement well MW-20R, which did not contain free product after installation in 2007, contained 0.25 feet of free product during this sampling event. Similarly, monitoring well MW-32 did not contain free product at the time of installation; however, 2.25 feet of free product was detected during this sampling event.

Petroleum hydrocarbon compounds were detected above RBSLs in monitoring wells MW-6, MW-12R, MW-13R, MW-14B, MW-15, MW-19R, MW-25, MW-26, and PW-31. Benzene concentrations greater than 5,000 ug/l were measured in the groundwater samples from monitoring wells MW-6, MW-13R, and PW-31. MTBE was detected above the RBSL concentration in monitoring wells MW-6 (15,100 ug/l), MW-13R (1,450 ug/l), MW-19R (66.5 ug/l), MW-25 (151 ug/l), and PW-31 (2,160 ug/l). Naphthalene was detected above the RBSL concentration in monitoring wells MW-12R (38.9 ug/l), MW-13R (1,250 ug/l), MW-14B (3,360 ug/l), MW-25 (26.1 ug/l), MW-26 (2,120 ug/l), and PW-31 (1,600 ug/l).

1,2-dichloroethane (1,2-DCA) was not detected in any of the groundwater samples collected during this sampling event.

A Benzene/MTBE concentration map is included as Figure 5. Inspection of Figure 5 indicates free product extends from MW-5 to MW-20, comprising a plume which is approximately 390 feet long and from 50 to 80 feet wide. The zone of RBSL exceedances extends up to 630 feet northeast and east of the source area (MW-5 vicinity). Contaminant concentrations at monitoring wells MW-1, MW-20, MW-20R, and MW-32 have increased significantly since the last sampling event (June 2007).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties have been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former or current UST system. Terracon recommends free product removal by Aggressive Fluid Vapor Recovery (AFVR) at monitoring wells MW-1, MW-2, MW-5, MW-20, MW-20R, and MW-32. Considering the separation distances

between these wells, Terracon recommends separate AFVR events on monitoring wells MW-1/MW-2/MW-5 (Event 1), MW-32 (Event 2), and MW-20/MW-20R (Event 3). These events should be spaced in 30 day increments to avoid air emission permitting requirements while maximizing contaminant removal. Terracon also recommends 12-hour AFVR events, which would be terminated early only if the monthly 1,000 pound air emission limit is met during any one event.

FIGURES

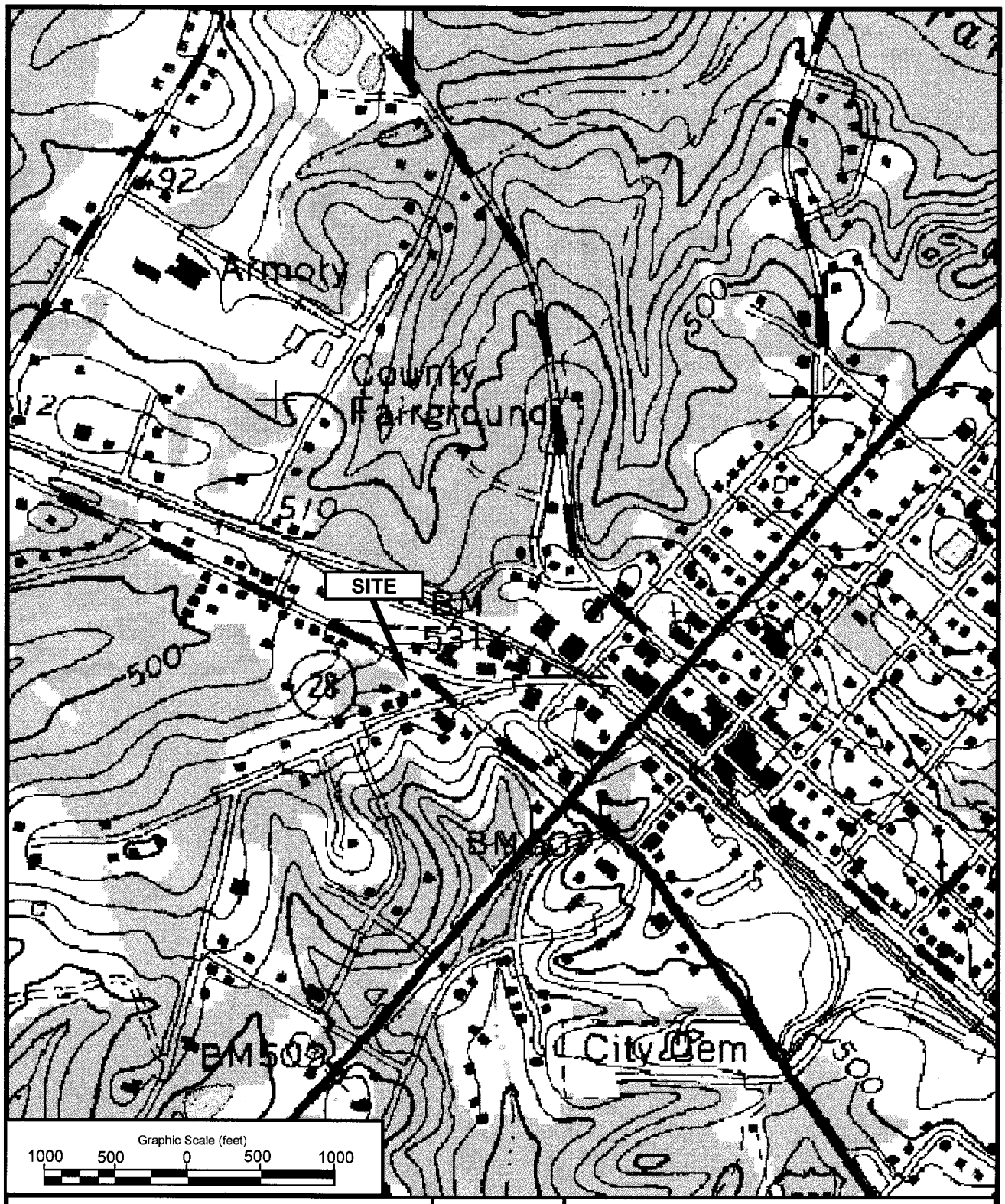
1. Site Location Map
2. Site Map
3. Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
4. Potentiometric Surface Map of the Intermediate Portion of the Shallow Aquifer
5. Benzene / MTBE Concentration Map

TABLES

1. Ground Water Elevation Data
2. Ground Water Analytical Data – Petroleum Compounds
3. Ground Water Analytical Data – Polycyclic Aromatic Hydrocarbon (PAH) Compounds

APPENDICES

A. Ground Water Sampling Logs
B. Chemical Analytical Data
C. Disposal Manifest



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

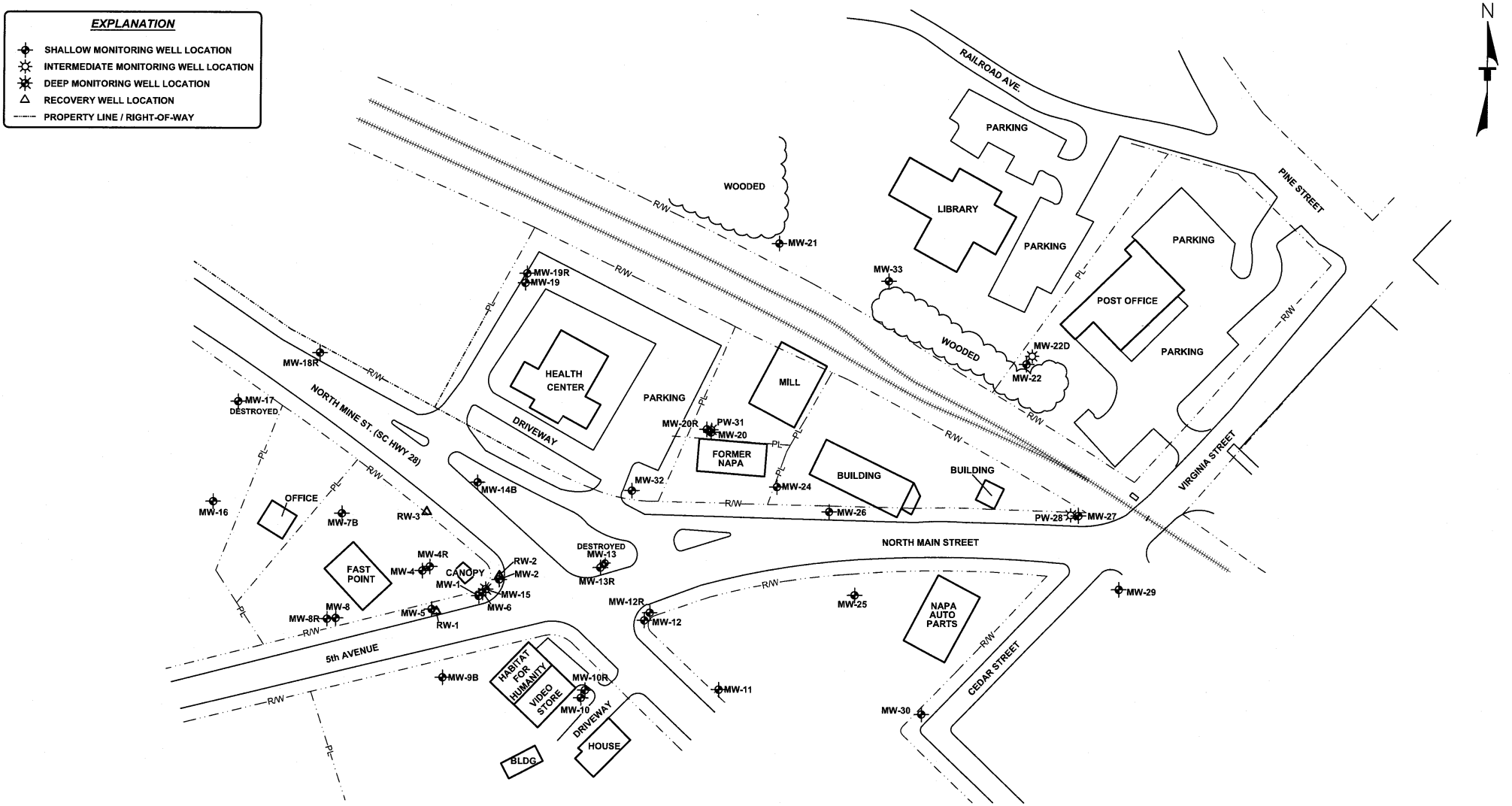
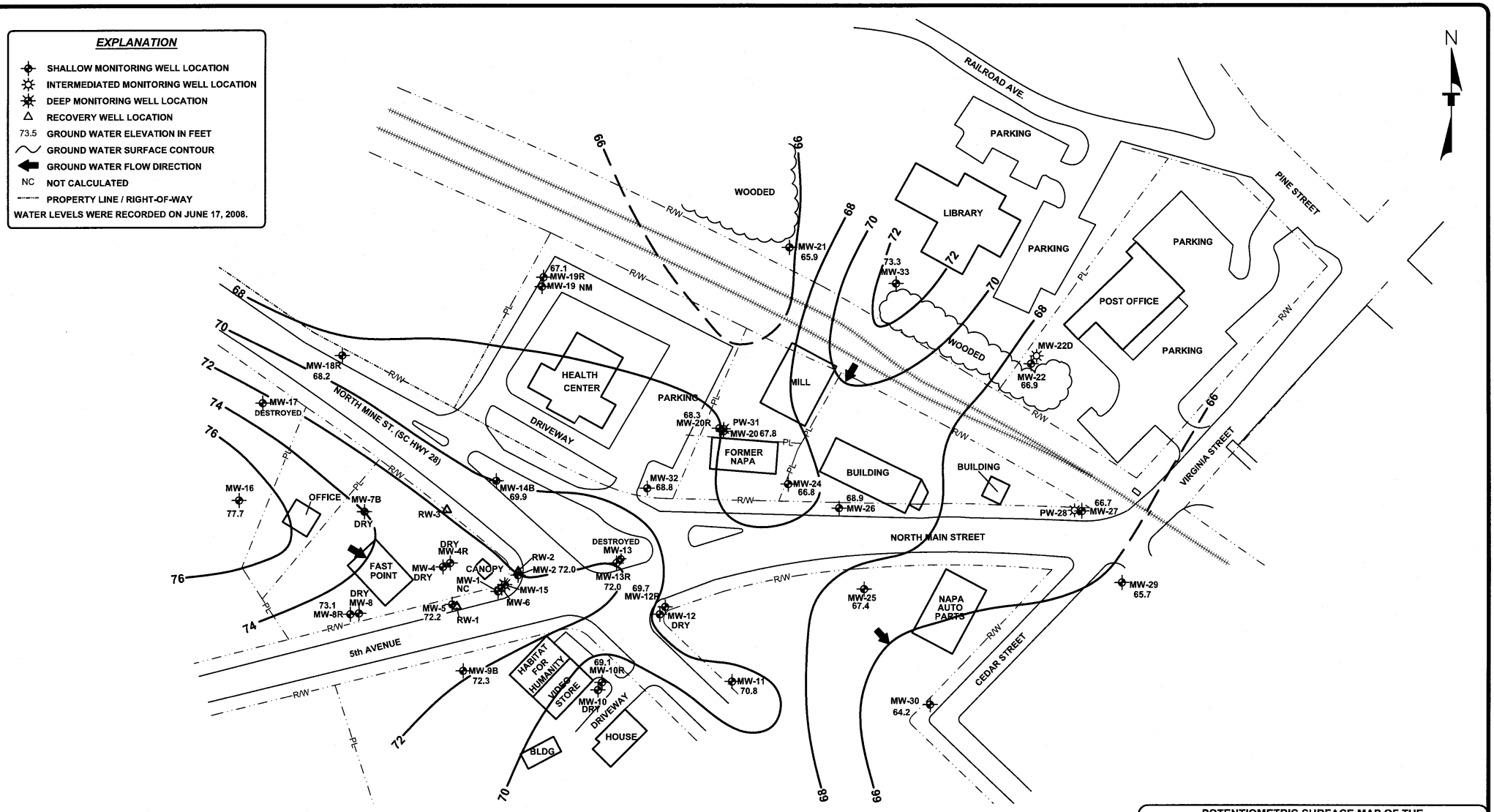


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr: PMH	Terracon	Project No.	73058013
Designed By: CB	521 Clemson Road	Scale:	1 IN = 100 FT
Checked By: CB	Columbia, South Carolina 29229	Date:	7-8-08
Approved By: CRC		Drawn By:	PTK
File Name: \73058013.dwg		Figure No.	2



NOTES:
1) WATER LEVEL MEASURED BY TERRACON PERSONNEL ON JUNE 17, 2008.
2) A POTENTIOMETRIC SURFACE ELEVATION WAS NOT CALCULATED FOR MW-1 DUE TO THE SIGNIFICANT THICKNESS (>3.0 ft) OF FREE PRODUCT IN THIS WELL.

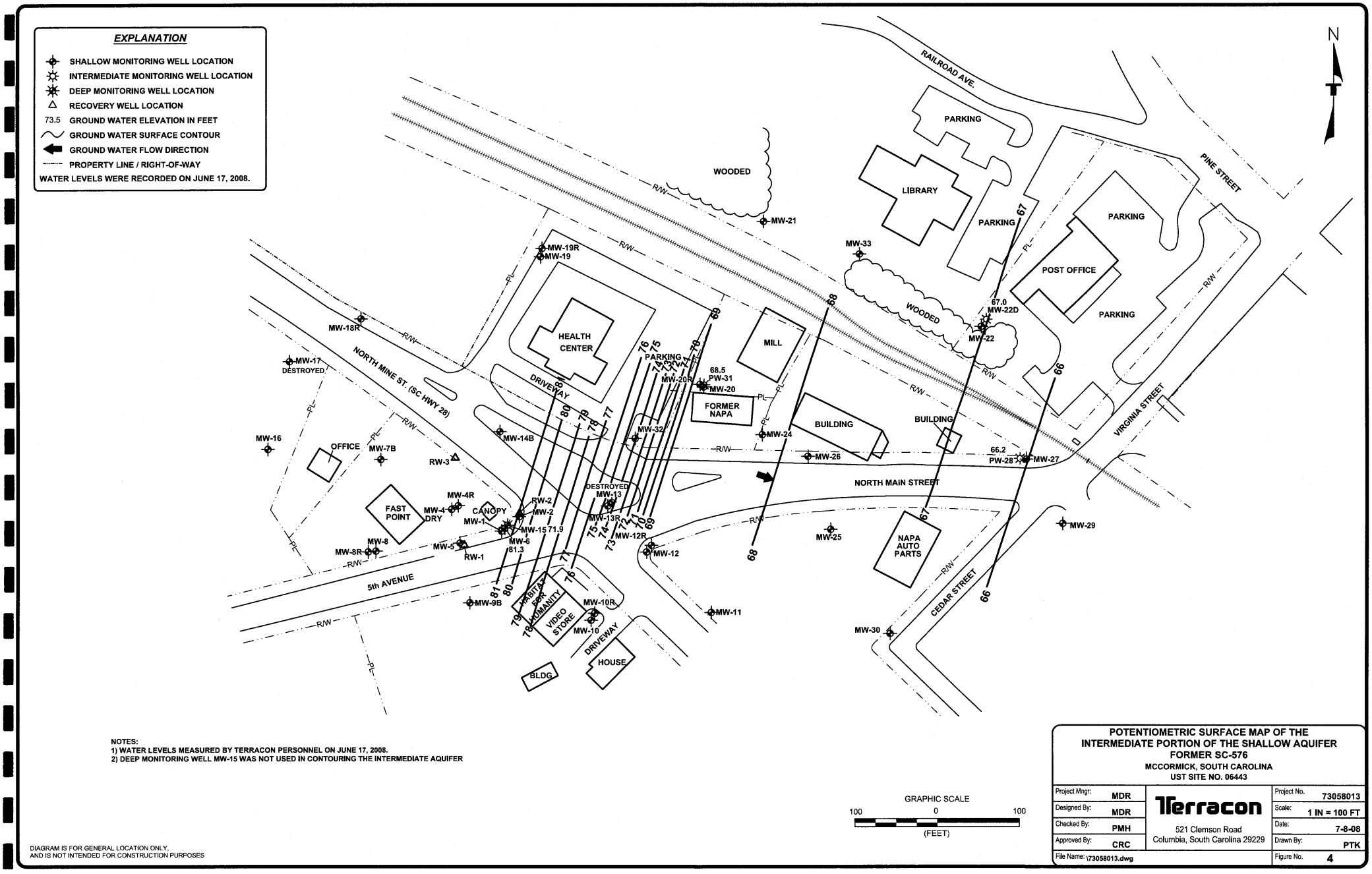
GRAPHIC SCALE
100 0 100
(FEET)

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

POTENTIOMETRIC SURFACE MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER FORMER SC-576

MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Terracon	Project No. 73058013
Designed By:	MDR	521 Clemson Road Columbia, South Carolina 29229	Scale: 1 IN = 100 FT
Checked By:	PMH		Date: 7-8-08
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 3



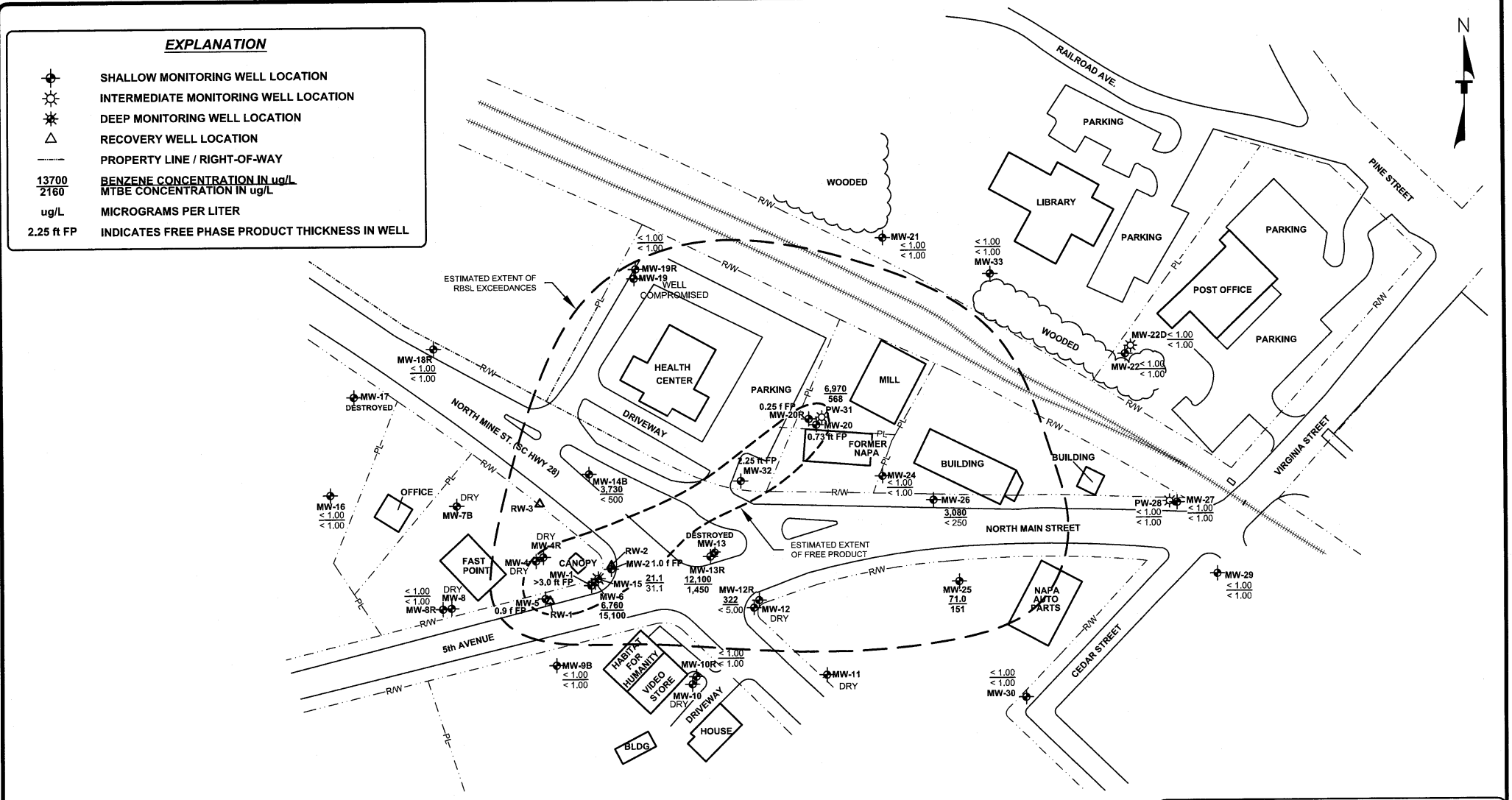
NOTES:
1) WATER LEVELS MEASURED BY TERRACON PERSONNEL ON JUNE 17, 2008.
2) DEEP MONITORING WELL MW-15 WAS NOT USED IN CONTOURING THE INTERMEDIATE AQUIFER

GRAPHIC SCALE
100 0 100
(FEET)

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

POTENTIOMETRIC SURFACE MAP OF THE INTERMEDIATE PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Terracon	Project No. 73058013
Designed By:	MDR	521 Clemson Road	Scale: 1 IN = 100 FT
Checked By:	PMH	Columbia, South Carolina 29229	Date: 7-8-08
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 4



NOTES:
1) SAMPLES COLLECTED BY TERRACON PERSONNEL ON JUNE 18-19, 2008.
2) THE NAPHTHALENE CONCENTRATION (66.5 ug/L) AT MW-19R EXCEEDED THE RBSL.

GRAPHIC SCALE
100 0 100
(FEET)

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

BENZENE / MTBE CONCENTRATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Terracon	Project No. 73058013
Designed By:	MDR	521 Clemson Road	Scale: 1 IN = 100 FT
Checked By:	PMH	Columbia, South Carolina 29229	Date: 7-8-08
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 5

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NC
MW-2	10/11/96	18-28	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			NM	28.10	**1.00**	71.99
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-5	5/28/03	15-30	102.16	21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86
	6/17/08			ND	19.11	ND	81.34
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NS	NS	NS	NS
	5/28/03			ND	18.00	ND	83.43
	12/20/04			DRY			
	6/05/07			ND	28.71	ND	72.72
	6/17/08			DRY			
MW-8	10/11/96	10-20	103.85	DRY			
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
	6/17/08			ND	30.75	ND	73.14

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			DRY			
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
	6/17/08			NM	26.65	ND	72.34
MW-10	10/11/96	8-18	93.53	DRY			
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY			
	6/05/07			DRY			
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
	6/17/08			ND	24.18	ND	69.13
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY			
	6/05/07			ND	15.18	ND	70.62
	6/17/08			DRY			
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
	6/17/08			ND	25.40	ND	69.96
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	**0.41**	77.87
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07	WELL DESTROYED					
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	71.99
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	69.94
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-15	6/17/08	125-130	100.08	ND	28.20	ND	71.88
MW-16	10/11/96	13-23.5	100.57	DRY			
	9/19/01			ND	22.47	ND	78.10
	9/18/02			DRY			
	5/28/03			ND	17.84	ND	82.73
	12/20/04			DRY			
	6/17/08			ND	22.85	ND	77.72
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL PAVED OVER					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL GROWN OVER					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
	6/17/08			ND	30.55	ND	68.2
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY			
	6/17/08			WELL CASING BENT; BAILER OBSTRUCTED			
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
	6/17/08			ND	26.96	ND	67.11
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-20	6/06/07	18-38.5	98.90	ND	28.75	ND	70.15
	6/17/08			ND	30.53	**0.73**	67.80
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			ND	29.94	**0.25**	68.25
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
	6/17/08			ND	31.66	ND	65.88
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NS	NS	NS	NS
	6/05/07			ND	33.00	ND	67.87
	6/17/08			ND	33.98	ND	66.89
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
	6/17/08			ND	31.42	ND	67.02
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-24	12/20/04	35-40	97.17	ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
	6/17/08			ND	27.38	ND	69.79
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97
	6/17/08			ND	27.55	ND	67.42
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			DRY			
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
	6/17/08			ND	27.51	ND	68.85
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
	6/17/08			ND	26.63	ND	66.71
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
	6/17/08			ND	27.00	ND	66.19
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
	6/17/08			ND	26.38	ND	65.73

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07			ND	19.31	ND	65.05
	6/17/08			ND	20.18	ND	64.18
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
	6/17/08			ND	29.63	ND	68.50
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			ND	27.22	**2.25**	68.76
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81
	6/17/08			ND	21.29	ND	73.33

Notes:
1) Ground Water elevations corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) NS - not sampled

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-1	10/11/96	**1.03 ft FREE PRODUCT**							
	9/19/01	**0.61 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**3.81 ft FREE PRODUCT**							
	12/20/04	**1.20 ft FREE PRODUCT**							
	6/5/07	**2.35 ft FREE PRODUCT**							
	6/17/08	**> 3 ft FREE PRODUCT**							
MW-2	10/11/96	**2.53 ft FREE PRODUCT**							
	9/19/01	**1.43 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**5.89 ft FREE PRODUCT**							
	12/20/04	**1.44 ft FREE PRODUCT**							
	6/5/07	**1.98 ft FREE PRODUCT**							
	6/17/08	**1.00 ft FREE PRODUCT**							
MW-4	10/11/96	**0.84 ft FREE PRODUCT**							
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
MW-4R	9/18/02	DRY							
	5/28/03	**1.33 ft FREE PRODUCT**							
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/5/07	**2.09 ft FREE PRODUCT**							
	6/17/08	DRY							
MW-5	5/28/03	**0.83 ft FREE PRODUCT**							
	12/20/04	**1.01 ft FREE PRODUCT**							
	6/5/07	**0.98 ft FREE PRODUCT**							
	6/17/08	**0.90 ft FREE PRODUCT**							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	BDL	**249**	NS
	9/18/02	**15,200**	684	291	2,278	**13,500**	**1.5**	**356**	NS
	5/28/03	**11,400**	213	136	1,641	**13,200**	**1.8**	**385**	NS
	12/21/04	**13,000**	300	320	1900	**15,000**	**1.2**	**400**	NS
	6/05/07	**13,500**	<200	<200	<600	**17,500**	<0.01	<1000	<1000
	6/19/08	**6,760**	< 100	< 100	< 300	**15,100**	NS	< 500	< 500
MW-7B	10/11/96	**35**	94	43	174	BDL	BDL	18	NS
	8/20/98	**31**	15	41	141	BDl	BDL	**41**	NS
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	BDL	NS
	12/20/04	DRY							
	6/05/07	4.9	9.4	1.9	10.4	4.7	<0.01	<5	<5
	6/17/08	DRY							
MW-8	10/11/96	DRY							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	DRY							
	12/20/04	DRY							
	06/05/07	DRY							
	6/17/08	DRY							
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-8R	6/06/07	<1	<1	<1	<1	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	BDL	NS
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	BDL	NS
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	**0.11**	BDL	NS
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/06/07	4.2	12.6	2.03	9.39	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-10	10/11/96	DRY							
	9/19/01	DRY							
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/20/04	DRY							
	6/06/07	DRY							
MW-10R	6/07/07	3.28	4.1	<1	3.6	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NS
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	BDL	NS
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS
	6/17/08	DRY							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	NS
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	BDL	NS
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	**0.18**	11.1	NS
	5/28/03	**178**	BDL	BDL	1.7	BDL	**0.14**	19.2	NS
	12/20/04	**230**	BDL	BDL	BDL	BDL	**1.1**	21	NS
	6/06/07	**332**	<10	<10	<30	<10	<0.010	<50	<50
	6/18/08	**322**	< 5.00	< 5.00	< 15.0	< 5.00	NS	**38.9**	< 25.0
MW-13	10/11/96	**0.41 ft FREE PRODUCT**							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL DESTROYED							
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**3.6**	**456**	NS
	5/28/03	**0.30 ft FREE PRODUCT**							
	12/20/04	**0.20 ft FREE PRODUCT**							
	6/05/07	**0.08 ft FREE PRODUCT**							
	6/18/08	**12,100**	**5,120**	**2,370**	**11,400**	**1,450**	NS	**1,250**	< 500
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	BDL	NS
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**42.4**	**403**	NS
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**16.9**	**1,040**	NS
	9/18/02	**0.63 ft FREE PRODUCT**							
	5/28/03	**0.12 ft FREE PRODUCT**							
	12/20/04	**0.43 ft FREE PRODUCT**							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-14B	6/05/07	**2,130**	**19,700**	**4,080**	**22,400**	<100	<0.010	**866**	<500
	6/18/08	**3,730**	**24,700**	**4,780**	**19,400**	< 500	NS	**3,360**	< 2,500
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/18/02	3.3	BDL	BDL	BDL	6.9	BDL	2.1	NS
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	BDL	NS
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	BDL	NS
	6/05/07	**50.5**	10.7	2	11.5	**49.6**	<0.010	<5	<5
	6/19/08	**21.1**	3.45	5.07	12.8	31.1	NS	6.34	< 5.00
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	BDL	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NS
	6/05/07	WELL DESTROYED							
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/05/07	WELL DESTROYED							
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	BDL	NS
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/06/07	<1	1.77	<1	<3	<1	<0.010	<5	<5

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-18R	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	BDL	NS
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	BDL	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	BDL	NS
	6/06/07	<1	<1	<1	<3	**54.7**	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	**66.5**	NS	< 5.00	< 5.00
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	BDL	NS
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**678**	**5,150**	NS
	9/19/01	DRY							
	12/20/04	**0.82 ft FREE PRODUCT**							
	6/07/07	**4,750**	**17,400**	**3,010**	**15,900**	**147**	<0.010	**1,230**	<500
	6/18/08	**0.73 ft FREE PRODUCT**							
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**46**	**446**	NS
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**E-67**	**393**	NS
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**54**	**660**	NS
	6/07/07	**8,750**	**13,800**	**1,490**	6,820	**973**	<0.010	<500	<500
	6/18/08	**0.25 ft FREE PRODUCT**							
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-21	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/05/07	1.52	2.89	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	1.23	1.86	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-22D	6/07/07	3.2	8.2	1.24	6.01	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	BDL	NS
	8/20/98	2.6	2	12	86	BDL	0.18	12.9	NS
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NS
	9/18/02	BDL	BDL	BDL	6.4	BDL	BDL	1.6	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	12/20/04	BDL	BDL	BDL	BDL	BDL	0.021	BDL	NS
	6/07/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	BDL	**480**	NS
	8/20/98	**3,081**	19	6	3,046	**788**	**2.48**	**393**	NS
	9/19/01	2.64	5.37	2.1	42.2	BDL	BDL	1.09	NS
	5/29/03	**740**	4.58	BDL	269.8	**562**	**0.34**	**112**	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-25	12/20/04	**1,200**	BDL	BDL	210	**370**	**0.16**	**180**	NS
	6/05/07	**27**	9.18	1.26	5.89	**130**	<0.010	<5	<5
	6/18/08	**71.0**	1.39	< 1.00	5.77	**151**	NS	**26.1**	< 5.00
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	BDL	NS
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**45**	**728**	NS
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	BDL	**2,070**	NS
	9/18/02	DRY							
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**E-15**	**672**	NS
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**6.1**	**940**	NS
	6/06/07	**1,730**	**8,510**	**904**	5,720	<200	<0.010	<1000	<1000
	6/18/08	**3,080**	**20,500**	**3,450**	**16,200**	< 250	NS	**2,120**	< 1,250
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/07/07	**8.74**	10.4	1.30	6.63	<1	0.036	<5	<5
	6/18/08	< 1.00	1.67	< 1.00	5.56	< 1.00	NS	< 5.00	< 5.00
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**42**	**440**	NS
	6/07/07	**8,640**	**13,100**	**1,380**	6,830	**1,030**	<0.010	<500	<500
	6/18/08	**6,970**	**16,900**	**2,540**	9,360	**568**	NS	**1,660**	< 1,250

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-32	6/07/07	**13,700**	**16,000**	**2,040**	**10,100**	**2,160**	**0.142**	**872**	<500
	6/18/08	**2.25 ft FREE PRODUCT**							
MW-33	6/07/07	**8.95**	11.6	1.07	5.87	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*0.05*	*25*	*0.05*

Notes:

1 Results shown in boldface type indicate concentrations which exceed the RBSL for that compound
2 BDL - below laboratory method detection limit
3 ug/l - micrograms per liter or parts per billion
4 NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis
5 NA- not analyzed/ data not available
6 MTBE - Methyl-tert-butyl-ether
7 EDB - 1,2- Dibromomethane
9 1, 2 DCA - 1,2 Dichloroethane
10 RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document

TABLE 3
GROUND WATER ANALYTICAL DATA
Polycyclic Aromatic Hydrocarbon (PAH) Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anth-racene (ug/l)	Benzo(a)anthracene (ug/l)	Beno(a)pyrene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(g,h,i)perylene (ug/l)	Benzo(k)fluoranthene (ug/l)	Chrysene (ug/l)	Dibenz(a,h)anthracene (ug/l)	Fluoranthene (ug/l)	Fluorene (ug/l)	Indeno(1,2,3-cd)pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)
RBSL		**NE**	**NE**	**NE**	**10**	**NE**	**10**	**NE**	**10**	**10**	**10**	**NE**	**NE**	**NE**	**25**	**NE**	**NE**
MW-1	6/17/08	**> 3.0 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-2	6/17/08	**1.0 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-4	6/17/08	DRY															
MW-4R	6/17/08	DRY															
MW-5	6/17/08	**0.83 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-6	6/19/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	**87.6**	< 10.4	< 10.4
MW-7B	6/17/08	DRY															
MW-8	6/17/08	DRY															
MW-8R	6/19/08	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8
MW-9B	6/19/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
MW-10	6/17/08	DRY															
MW-10R	6/19/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
MW-11	6/17/08	DRY															
MW-12	6/17/08	DRY															
MW-12R	6/18/08	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	**25.8**	< 10.9	< 10.9
MW-13	6/17/08	WELL DESTROYED															
MW-13R	6/18/08	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	**972**	< 102	< 102
MW-14B	6/18/08	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	**1,520**	< 108	< 108
MW-15	6/19/08	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2
MW-16	6/18/08	INSUFFICIENT WATER FOR SAMPLE															
MW-17	6/17/08	WELL PAVED OVER															
MW-18	6/17/08	WELL GROWN OVER															
MW-18R	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
MW-19	6/17/08	WELL CASING BENT; BAILER OBSTRUCTED															
MW-19R	6/18/08	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9
MW-20	6/17/08	**0.73 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-20R	6/17/08	**0.25 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-21	6/18/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4
MW-22	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
MW-22D	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
MW-24	6/18/08	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8
MW-25	6/18/08	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	**29.6**	< 10.3	< 10.3
MW-26	6/18/08	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	**625**	< 53.8	< 53.8
MW-27	6/18/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
PW-28	6/18/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4
MW-29	6/18/08	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2
MW-30	6/18/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
PW-31	6/18/08	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3
MW-32	6/17/08	**2.25 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-33	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1

NOTES:
1) ug/l - micrograms per liter
2) RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document
3) The Risk-Based Screening Level as defined by the SCDHEC RBCA Document for total PAHs in ground water is 25 ug/l.
4) NE - Not Established

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Groundwater Sampling Log

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Well ID:	MW-1
Date:	6/19/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	15-30 ft. BTOC
Depth to water:	29.94 ft. BTOC
Length of Water Column (LWC):	0.06 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	0.01 gal.
3 Casing Volumes:	gal.
Remarks:	3' plus of FP
	no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-2	Total Well Depth:	15-30 ft. BTOC
Date:	6/19/08	Depth to water:	28.10 ft. BTOC
Site Name:	SC-576	Length of Water Column (LWC):	1.9 ft.
Project No.:	73048013	Casing Diameter:	2 in.
Field Personnel:	W.W.	1 Casing Volume = LWC x .17 =	0.323 gal.
Weather Conditions:	Sunny	3 Casing Volumes:	gal.
Air Temperature:	95	Remarks:	1.0' of FP
Well Evacuation Method:	Bailer		no sample
Sample Collection Method:	Bailer		
Sampled at (time):			

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-4R
Date:	
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	20.5 - 30.5 ft. BTOC
Depth to water:	31.50 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	not enough H_2O for sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-5
Date:	6/19/06
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	15-30 ft. BTOC
Depth to water:	30.65 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: 0.90 1/10 oR FP
no Sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-6
Date:	6/19/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	V.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1130

Total Well Depth:	~~25-35~~	ft. BTOC
Depth to water:	~~28.2~~ 19.11	ft. BTOC
Length of Water Column (LWC):	15.89	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.7	gal.
3 Casing Volumes:	8.1	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	2.7	5.4	8.1				
Time							
pH	6.89	6.72	6.55				
Specific Conductivity (umhos/cm)	7.93	8.55	8.83				
Water Temperature ©	24.2	24.1	23.2				
Turbidity	low	~	~				
Dissolved Oxygen (mg/L)			2.70				

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Well ID:	MW-7B
Date:	6/
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	15-30 ft. BTOC
Depth to water:	30.00 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	dry to Sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-8R
Date:	6/19/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	~95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	930

Total Well Depth:	25.40 ft. BTOC
Depth to water:	30.75 ft. BTOC
Length of Water Column (LWC):	9.25 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	~~1.25~~ 1.57 gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.66						
Specific Conductivity (umhos/cm)	76.7						
Water Temperature ©	22						
Turbidity	low						
Dissolved Oxygen (mg/L)	3.15						

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Well ID:	MW-9B
Date:	6/19/06
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	900

Total Well Depth:	15-30	ft. BTOC
Depth to water:	26.65	ft. BTOC
Length of Water Column (LWC):	3.35	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x	.17 = 0.56	gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.97						
Specific Conductivity (umhos/cm)	7.48						
Water Temperature ©	21.5						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.23						

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Well ID:	MW-10R
Date:	6/19/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	840

Total Well Depth:	24.39 ft. BTOC
Depth to water:	24.18 ft. BTOC
Length of Water Column (LWC):	14.82 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.51 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	6.05						
Specific Conductivity (umhos/cm)	99.3						
Water Temperature ©	22.0						
Turbidity	low						
Dissolved Oxygen (mg/L)	8.03						

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Well ID:	MW-11
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1540~~

Total Well Depth:	5-15 ft. BTOC
Depth to water:	15.29 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: dry
no Sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-12R
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1640

Total Well Depth:	~~18.5 - 33.5~~	ft. BTOC
Depth to water:	25.40	ft. BTOC
Length of Water Column (LWC):	19.6	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x 1(7 =	3.3	gal.
3 Casing Volumes:	9.99	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	3.3	6.6	9.99				
Time							
pH	5.39	5.31	5.20				
Specific Conductivity (umhos/cm)	0.25	0.47	180.1				
Water Temperature ©	23.4	22.9	22.8				
Turbidity	low	Mod	—				
Dissolved Oxygen (mg/L)			2.61				

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Well ID:	MW-13R
Date:	9/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1600

Total Well Depth:	29.44	ft. BTOC
Depth to water:	26.34	ft. BTOC
Length of Water Column (LWC):	17.66	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x	1(7 = 3.00	gal.
3 Casing Volumes:	9	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	3	6	9				
Time							
pH	5.24	5.30	5.32				
Specific Conductivity (umhos/cm)	13.51	189.2	253.0				
Water Temperature ©	22.8	22.6	22.8				
Turbidity	High	—	—				
Dissolved Oxygen (mg/L)			1.43				

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Groundwater Sampling Log

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Well ID:	MW-14B
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W
Weather Conditions:	95
Air Temperature:	Sunny
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1520

Total Well Depth:	20.40 ft. BTOC
Depth to water:	30.80 ft. BTOC
Length of Water Column (LWC):	9.2 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.56 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.33						
Specific Conductivity (umhos/cm)	0.48						
Water Temperature ©	24.0						
Turbidity	Mod						
Dissolved Oxygen (mg/L)	1.45						

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Groundwater Sampling Log

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Well ID:	MW-15
Date:	6/19/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	K.V.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1330

Total Well Depth:	125-130	ft. BTOC
Depth to water:	~~19.1~~ 28.2	ft. BTOC
Length of Water Column (LWC):	101.8	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x 1.17 =	17.3	gal.
3 Casing Volumes:	51.9	gal.
Remarks:	well began to run dry @ 20 gal	

Field Analyses

Volume Purged (gal.)	17.3	~~34~~ 20	~~51.9~~				
Time							
pH	6.06	5.55					
Specific Conductivity (umhos/cm)	1103	9.99					
Water Temperature ©	25.9	23.0					
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)		2.62					

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Groundwater Sampling Log

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Well ID:	MW-16
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.L.
Weather Conditions:	sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1440

Total Well Depth:	13-23.5 ft. BTOC
Depth to water:	22.85 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x 1.17 =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: only enough H_2O for BTEX, MTBE 1,2-DCA

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-18R
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	V.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1420

Total Well Depth:	19-33 ft. BTOC
Depth to water:	30.55 ft. BTOC
Length of Water Column (LWC):	2.45 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	0.41 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.21						
Specific Conductivity (umhos/cm)	7.58						
Water Temperature ©	22.9						
Turbidity	Mod						
Dissolved Oxygen (mg/L)	8.48						

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Groundwater Sampling Log

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Well ID:	MW-19
Date:	
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	M.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	12-22,5	ft. BTOC
Depth to water:	21,61	ft. BTOC
Length of Water Column (LWC):	0,89	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0,15	gal.
3 Casing Volumes:		gal.

Remarks: well casing bent, will not take bailer
no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-19R
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1350

Total Well Depth:	30-45 ft. BTOC
Depth to water:	26.96 ft. BTOC
Length of Water Column (LWC):	18.04 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x 0.17 =	3.06 gal.
3 Casing Volumes:	9 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	3.06	6	9				
Time							
pH	5.02	4.93	4.88				
Specific Conductivity (umhos/cm)	8.24	7.09	9.24 ms				
Water Temperature ©	21.03	20.9	20.3				
Turbidity	High	—	—				
Dissolved Oxygen (mg/L)			2.49				

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Groundwater Sampling Log

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Well ID:	MW-20
Date:	9/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	18-38.5	ft. BTOC
Depth to water:	30.53	ft. BTOC
Length of Water Column (LWC):	7.97	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.35	gal.
3 Casing Volumes:		gal.

Remarks: 0.73 ~~ft~~ FP
no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-20R
Date:	6/18/09
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1220~~

Total Well Depth:	34.5 - 49.5 ft. BTOC
Depth to water:	29.94 ft. BTOC
Length of Water Column (LWC):	19.56 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x 1 17 =	3.32 gal.
3 Casing Volumes:	9.9 gal.
Remarks:	0.25 lbs FP
	ND Sample

Field Analyses

Volume Purged (gal.)	3.32	6.6	9.9				
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-21
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	800

Total Well Depth:	30.3 - 40.3 ft. BTOC
Depth to water:	31.66 ft. BTOC
Length of Water Column (LWC):	8.64 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.46 gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.86						
Specific Conductivity (umhos/cm)	111.6						
Water Temperature ©	18.3						
Turbidity	low						
Dissolved Oxygen (mg/L)	3.81						

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Groundwater Sampling Log

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Well ID:	MW-22
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	WH
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	910

Total Well Depth:	32-42 ft. BTOC
Depth to water:	33.98 ft. BTOC
Length of Water Column (LWC):	8.02 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.36 gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.60						
Specific Conductivity (umhos/cm)	94.1						
Water Temperature ©	18.7						
Turbidity	low						
Dissolved Oxygen (mg/L)	8.46						

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Groundwater Sampling Log

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Well ID:	MW-22D
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	930

Total Well Depth:	~~32.42~~ 52-57	ft. BTOC
Depth to water:	31.42	ft. BTOC
Length of Water Column (LWC):	25.58	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x 17 =	4.34	gal.
3 Casing Volumes:	12.9	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	4.34	8	12.9				
Time							
pH	5.71	5.44	5.29				
Specific Conductivity (umhos/cm)	132.9	152.8	157.4				
Water Temperature ©	18.7	18.8	18.4				
Turbidity	Mod	—	—				
Dissolved Oxygen (mg/L)			6.91				

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Groundwater Sampling Log

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Well ID:	MW-24
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1210

Total Well Depth:	35-40 ft. BTOC
Depth to water:	27.38 ft. BTOC
Length of Water Column (LWC):	12.62 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.14 gal.
3 Casing Volumes:	6.3 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	2.14	2.2	6.3				
Time							
pH	5.32	5.25	5.23				
Specific Conductivity (umhos/cm)	0.50	7.04	7.36				
Water Temperature ©	23.4	22.6	22.2				
Turbidity	low	Mod	-				
Dissolved Oxygen (mg/L)			3.11				

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Groundwater Sampling Log

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Well ID:	MW-25
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1100

Total Well Depth:	15-30 ft. BTOC
Depth to water:	27.55 ft. BTOC
Length of Water Column (LWC):	2.45 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	0.41 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.31						
Specific Conductivity (umhos/cm)	1015						
Water Temperature ©	22.5						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.43						

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Groundwater Sampling Log

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Well ID:	MW-26
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1130

Total Well Depth:	15-30 ft. BTOC
Depth to water:	27.51 ft. BTOC
Length of Water Column (LWC):	2.49 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x 17 =	0.42 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.45						
Specific Conductivity (umhos/cm)	6.26						
Water Temperature ©	23.0						
Turbidity	Mod						
Dissolved Oxygen (mg/L)	1.32						

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Groundwater Sampling Log

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Well ID:	MW-27
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	L.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1030

Total Well Depth:	25-40 ft. BTOC
Depth to water:	24.63 ft. BTOC
Length of Water Column (LWC):	13.37 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x 1/7 =	2.27 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.74						
Specific Conductivity (umhos/cm)	99.8						
Water Temperature ©	22.2						
Turbidity	low						
Dissolved Oxygen (mg/L)	3.49						

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Groundwater Sampling Log

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Well ID:	PW-28
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.W
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1050

Total Well Depth:	50-55	ft. BTOC
Depth to water:	27.00	ft. BTOC
Length of Water Column (LWC):	28	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	4.76	gal.
3 Casing Volumes:	14.28	gal.

Remarks: ____

Field Analyses

Volume Purged (gal.)	4.76	9	14.28				
Time							
pH	5.38	5.36	5.30				
Specific Conductivity (umhos/cm)	159.0	192.0	192.1				
Water Temperature ©	22.2	22.6	21.7				
Turbidity	low	low	low				
Dissolved Oxygen (mg/L)			2.63				

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Groundwater Sampling Log

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Well ID:	MW-29
Date:	6/18/08
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	W.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1010

Total Well Depth:	23-38	ft. BTOC
Depth to water:	26.38	ft. BTOC
Length of Water Column (LWC):	11.2	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x 1.67 =	1.9	gal.
3 Casing Volumes:		gal.

Remarks:

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.41						
Specific Conductivity (umhos/cm)	51.9						
Water Temperature ©	22.3						
Turbidity	low						
Dissolved Oxygen (mg/L)	7.22						

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Groundwater Sampling Log

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Well ID:	MW-30
Date:	6/18/08
Site Name:	7304-8013
Project No.:	SC-576
Field Personnel:	L.L.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	B
Sampled at (time):	1000

Total Well Depth:	11-26 ft. BTOC
Depth to water:	20,18 ft. BTOC
Length of Water Column (LWC):	5.82 ft.
Casing Diameter:	~~0.98~~ 2 in.
1 Casing Volume = LWC x .17 =	0,98 gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.53						
Specific Conductivity (umhos/cm)	79.8						
Water Temperature ©	19.2						
Turbidity	~~Bottom~~						
Dissolved Oxygen (mg/L)	5.96						

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Groundwater Sampling Log

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Well ID:	PW-31
Date:	6/18/08
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	V.W.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	B
Sampled at (time):	1320

Total Well Depth:	50-55	ft. BTOC
Depth to water:	29.63	ft. BTOC
Length of Water Column (LWC):	25.37	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	4.3	gal.
3 Casing Volumes:	12.9	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	4.3	8	12.9				
Time							
pH	5.91	5.56	5.54				
Specific Conductivity (umhos/cm)	5.94us	207.1	199.5				
Water Temperature ©	23.0	22.0	21.3				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			2.94				

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Groundwater Sampling Log

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Well ID:	MW-32
Date:	6/18/08
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	V.V.
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	B
Sampled at (time):	~~1220~~

Total Well Depth:	20-35 ft. BTOC
Depth to water:	27.22 ft. BTOC
Length of Water Column (LWC):	7.78 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.3 gal.
3 Casing Volumes:	gal.

Remarks: 2.25 ft of free product
no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-33
Date:	6/18/08
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	WLW
Weather Conditions:	Sunny
Air Temperature:	95
Well Evacuation Method:	Bailer
Sample Collection Method:	B
Sampled at (time):	840

Total Well Depth:	23-38 ft. BTOC
Depth to water:	21.29 ft. BTOC
Length of Water Column (LWC):	16.71 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.84 gal.
3 Casing Volumes:	8.5 gal.
Remarks:	well went dry @ 5.0gal
	full sample

Field Analyses

Volume Purged (gal.)	2.84	5.6	8.5				
Time							
pH	5.85	5.68					
Specific Conductivity (umhos/cm)	6.62	1089us					
Water Temperature ©	17.8	17.4					
Turbidity	Mod	Mod					
Dissolved Oxygen (mg/L)		8.08					

ACCESS
ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT
Terracon
521 Clemson Road
Columbia, SC 29229

ATTENTION
Melissa Roberts

PROJECT ID
SC-576

LABORATORY REPORT NUMBER
208062005

DATE
06/27/2008

Primary Data Review By

Curtis Ekker
Data Validation Manager, GCAL

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical, Inc.
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 GSRI Rd. Baton Rouge, LA 70820.**
- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**
- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

NELAP CERTIFICATE NUMBER 01955

ANALYTICAL RESULTS

PERFORMED BY

GULF COAST ANALYTICAL LABORATORIES, INC.

Report Date 06/27/2008

GCAL Report 208062005

Deliver To Terracon
521 Clemson Road
Columbia, SC 29229
803-741-9000

Attn Melissa Roberts

Project SC-576

CASE NARRATIVE

Client: Terracon **Report:** 208062005

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES MASS SPECTROMETRY

In the SW-846 8260B analysis for analytical batch 391374, an MS/MSD is not reportable. However, an LCS/LCSD is included for review.

In the SW-846 8260B analysis for analytical batch 391374, no MS/MSD was performed due to insufficient sample volume. The LCS/LCSD is included for review.

In the SW-846 8260B analysis, samples 20806200501 (MW-6), 20806200505 (MW-12R), 20806200506 (MW-13R), 20806200517 (MW-26), 20806200507 (MW-14B) and 20806200522 (PW-31) had to be diluted due to compounds that were detected above the linear range of the calibration.

In the SW-846 8260B analysis of sample 20806200520 (MW-29), the recovery for the surrogate Dibromofluoromethane was above the upper control limit. The remaining surrogates were all within control limits.

In the SW-846 8260B analysis of samples 20806200508 (MW-15), 20806200516 (MW-25) and 20806200519 (PW-28), the recovery for the surrogate Dibromofluoromethane was outside of the established control limits. The sample was re-analyzed and similar results were observed.

In the SW-846 8260B analysis for analytical batch 391579, the MS/MSD exhibited recovery failures. 1,2-Dichloroethane exhibited an increased response factor yielding a % drift value of 35. However, 1,2-Dichloroethane was not detected during sample analysis.

In the SW-846 8260B analysis for analytical batch 391640, the LCS/LCSD exhibited marginal sporadic recovery failures for the extended list of spike compounds. 1,2-Dichlorethane exhibited an increased response factor yielding a % drift value of 42 in the associated CCV. However, 1,2-Dichloroethane was not detected during sample analysis.

SEMI-VOLATILES MASS SPECTROMETRY

In the SW-846 8270C analysis, samples 20806200517 (MW-26) and 20806200522 (PW-31) had to be diluted due to compounds that were detected above the linear range of the calibration.

In the SW-846 8270C analysis of samples 20806200506 (MW-13R) and 20806200507 (MW-14B) required a dilution prior to analysis due to the presence of non-target background. This dilution is reflected in elevated detection limits.

In the SW-846 8270C analysis, sample 20806200514 (MW-22D) had one surrogate recovery outside control limits in the base-neutral fraction. All other surrogate recoveries were acceptable for this sample.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified RDL
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates an estimated value
U	Indicates the compound was analyzed for but not detected
B	(ORGANICS) Indicates the analyte was detected in the associated Method Blank
B	(INORGANICS) Indicates the result is between the RDL and MDL

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This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

CURTIS EKKER
DATA VALIDATION MANAGER
GCAL REPORT 208062005

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200501	MW-6	Water	06/19/2008 11:30	06/20/2008 09:27
20806200502	MW-8R	Water	06/19/2008 09:30	06/20/2008 09:27
20806200503	MW-9B	Water	06/19/2008 09:00	06/20/2008 09:27
20806200504	MW-10R	Water	06/19/2008 08:40	06/20/2008 09:27
20806200505	MW-12R	Water	06/18/2008 16:40	06/20/2008 09:27
20806200506	MW-13R	Water	06/18/2008 16:00	06/20/2008 09:27
20806200507	MW-14B	Water	06/18/2008 15:20	06/20/2008 09:27
20806200508	MW-15	Water	06/19/2008 13:20	06/20/2008 09:27
20806200509	MW-16	Water	06/18/2008 14:40	06/20/2008 09:27
20806200510	MW-18R	Water	06/18/2008 14:20	06/20/2008 09:27
20806200511	MW-19R	Water	06/18/2008 13:50	06/20/2008 09:27
20806200512	MW-21	Water	06/18/2008 08:00	06/20/2008 09:27
20806200513	MW-22	Water	06/18/2008 09:10	06/20/2008 09:27
20806200514	MW-22D	Water	06/18/2008 09:30	06/20/2008 09:27
20806200515	MW-24	Water	06/18/2008 12:10	06/20/2008 09:27
20806200516	MW-25	Water	06/18/2008 11:00	06/20/2008 09:27
20806200517	MW-26	Water	06/18/2008 11:30	06/20/2008 09:27
20806200518	MW-27	Water	06/18/2008 10:30	06/20/2008 09:27
20806200519	PW-28	Water	06/18/2008 10:50	06/20/2008 09:27
20806200520	MW-29	Water	06/18/2008 10:10	06/20/2008 09:27
20806200521	MW-30	Water	06/18/2008 10:00	06/20/2008 09:27
20806200522	PW-31	Water	06/18/2008 13:20	06/20/2008 09:27
20806200523	MW-33	Water	06/18/2008 08:40	06/20/2008 09:27

Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200501	MW-6	Water	06/19/2008 11:30	06/20/2008 09:27

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	87.6	10.4		ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	6760	100		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	15100	100		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200505	MW-12R	Water	06/18/2008 16:40	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	322	5.00		ug/L
91-20-3	Naphthalene	38.9	25.0		ug/L

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	25.8	10.9		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200506	MW-13R	Water	06/18/2008 16:00	06/20/2008 09:27

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	972	102		ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	12100	100		ug/L
108-88-3	Toluene	5120	100		ug/L
100-41-4	Ethylbenzene	2370	100		ug/L
1330-20-7	Xylene (total)	11400	300		ug/L
91-20-3	Naphthalene	1250	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	1450	100		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200507	MW-14B	Water	06/18/2008 15:20	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3730	500		ug/L
108-88-3	Toluene	24700	500		ug/L
100-41-4	Ethylbenzene	4780	500		ug/L
1330-20-7	Xylene (total)	19400	1500		ug/L
91-20-3	Naphthalene	3360	2500		ug/L

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	1520	108		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200508	MW-15	Water	06/19/2008 13:20	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	21.1	1.00		ug/L
108-88-3	Toluene	3.45	1.00		ug/L
100-41-4	Ethylbenzene	5.07	1.00		ug/L
1330-20-7	Xylene (total)	12.8	3.00		ug/L
91-20-3	Naphthalene	6.34	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	31.1	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200511	MW-19R	Water	06/18/2008 13:50	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
1634-04-4	tert-Butyl methyl ether (MTBE)	66.5	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200516	MW-25	Water	06/18/2008 11:00	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	71.0	1.00		ug/L
108-88-3	Toluene	1.39	1.00		ug/L
1330-20-7	Xylene (total)	5.77	3.00		ug/L
91-20-3	Naphthalene	26.1	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	151	1.00		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200516	MW-25	Water	06/18/2008 11:00	06/20/2008 09:27

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	29.6	10.3		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200517	MW-26	Water	06/18/2008 11:30	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3080	250		ug/L
108-88-3	Toluene	20500	250		ug/L
100-41-4	Ethylbenzene	3450	250		ug/L
1330-20-7	Xylene (total)	16200	750		ug/L
91-20-3	Naphthalene	2120	1250		ug/L

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	625	53.8		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200519	PW-28	Water	06/18/2008 10:50	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
108-88-3	Toluene	1.67	1.00		ug/L
1330-20-7	Xylene (total)	5.56	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200522	PW-31	Water	06/18/2008 13:20	06/20/2008 09:27

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	6970	250		ug/L
108-88-3	Toluene	16900	250		ug/L
100-41-4	Ethylbenzene	2540	250		ug/L
1330-20-7	Xylene (total)	9360	750		ug/L
91-20-3	Naphthalene	1660	1250		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	568	250		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200522	PW-31	Water	06/18/2008 13:20	06/20/2008 09:27

SW-846 8270C

CAS#	Parameter	Result	RDL	REG LIMIT	Units
91-20-3	Naphthalene	363	54.3		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200501	MW-6	Water	06/19/2008 11:30	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/25/2008 22:03	ADI	391579

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**6760**	**100**		ug/L
108-88-3	Toluene	ND	100		ug/L
100-41-4	Ethylbenzene	ND	100		ug/L
1330-20-7	Xylene (total)	ND	300		ug/L
91-20-3	Naphthalene	ND	500		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**15100**	**100**		**ug/L**
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5460	ug/L	109	78 - 130
1868-53-7	Dibromofluoromethane	5000	4720	ug/L	94	77 - 127
2037-26-5	Toluene d8	5000	4870	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5950	ug/L	119	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	1	06/24/2008 15:40	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.4		ug/L
208-96-8	Acenaphthylene	ND	10.4		ug/L
120-12-7	Anthracene	ND	10.4		ug/L
56-55-3	Benzo(a)anthracene	ND	10.4		ug/L
50-32-8	Benzo(a)pyrene	ND	10.4		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.4		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.4		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.4		ug/L
218-01-9	Chrysene	ND	10.4		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.4		ug/L
206-44-0	Fluoranthene	ND	10.4		ug/L
86-73-7	Fluorene	ND	10.4		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.4		ug/L
91-20-3	**Naphthalene**	**87.6**	**10.4**		**ug/L**
85-01-8	Phenanthrene	ND	10.4		ug/L
129-00-0	Pyrene	ND	10.4		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	52.1	46.4	ug/L	89	52 - 110
321-60-8	2-Fluorobiphenyl	52.1	35.8	ug/L	69	16 - 128
1718-51-0	Terphenyl-d14	52.1	45.7	ug/L	88	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200502	MW-8R	Water	06/19/2008 09:30	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 05:03	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.9	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	50	56.1	ug/L	112	77 - 127
2037-26-5	Toluene d8	50	49.2	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	57	ug/L	114	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	1	06/24/2008 15:55	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.8		ug/L
208-96-8	Acenaphthylene	ND	10.8		ug/L
120-12-7	Anthracene	ND	10.8		ug/L
56-55-3	Benzo(a)anthracene	ND	10.8		ug/L
50-32-8	Benzo(a)pyrene	ND	10.8		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.8		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.8		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.8		ug/L
218-01-9	Chrysene	ND	10.8		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.8		ug/L
206-44-0	Fluoranthene	ND	10.8		ug/L
86-73-7	Fluorene	ND	10.8		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.8		ug/L
91-20-3	Naphthalene	ND	10.8		ug/L
85-01-8	Phenanthrene	ND	10.8		ug/L
129-00-0	Pyrene	ND	10.8		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.8	44.3	ug/L	82	52 - 110
321-60-8	2-Fluorobiphenyl	53.8	40.3	ug/L	75	16 - 128
1718-51-0	Terphenyl-d14	53.8	51	ug/L	95	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200503	MW-9B	Water	06/19/2008 09:00	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 00:19	ADI	391579

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	55.2	ug/L	110	78 - 130
1868-53-7	Dibromofluoromethane	50	45.9	ug/L	92	77 - 127
2037-26-5	Toluene d8	50	45.5	ug/L	91	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.5	ug/L	99	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	1	06/24/2008 16:10	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.1		ug/L
208-96-8	Acenaphthylene	ND	10.1		ug/L
120-12-7	Anthracene	ND	10.1		ug/L
56-55-3	Benzo(a)anthracene	ND	10.1		ug/L
50-32-8	Benzo(a)pyrene	ND	10.1		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.1		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.1		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.1		ug/L
218-01-9	Chrysene	ND	10.1		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.1		ug/L
206-44-0	Fluoranthene	ND	10.1		ug/L
86-73-7	Fluorene	ND	10.1		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.1		ug/L
91-20-3	Naphthalene	ND	10.1		ug/L
85-01-8	Phenanthrene	ND	10.1		ug/L
129-00-0	Pyrene	ND	10.1		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	42.3	ug/L	84	52 - 110
321-60-8	2-Fluorobiphenyl	50.5	38.9	ug/L	77	16 - 128
1718-51-0	Terphenyl-d14	50.5	46.8	ug/L	93	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200504	MW-10R	Water	06/19/2008 08:40	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 05:25	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	44.3	ug/L	89	78 - 130
1868-53-7	Dibromofluoromethane	50	59.2	ug/L	118	77 - 127
2037-26-5	Toluene d8	50	49.9	ug/L	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	57.1	ug/L	114	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	1	06/24/2008 16:25	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.6		ug/L
208-96-8	Acenaphthylene	ND	10.6		ug/L
120-12-7	Anthracene	ND	10.6		ug/L
56-55-3	Benzo(a)anthracene	ND	10.6		ug/L
50-32-8	Benzo(a)pyrene	ND	10.6		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.6		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.6		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.6		ug/L
218-01-9	Chrysene	ND	10.6		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.6		ug/L
206-44-0	Fluoranthene	ND	10.6		ug/L
86-73-7	Fluorene	ND	10.6		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.6		ug/L
91-20-3	Naphthalene	ND	10.6		ug/L
85-01-8	Phenanthrene	ND	10.6		ug/L
129-00-0	Pyrene	ND	10.6		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.2	42.7	ug/L	80	52 - 110
321-60-8	2-Fluorobiphenyl	53.2	37.4	ug/L	70	16 - 128
1718-51-0	Terphenyl-d14	53.2	44.2	ug/L	83	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200505	MW-12R	Water	06/18/2008 16:40	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			5	06/26/2008 00:45	ADI	391579

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**322**	**5.00**		**ug/L**
108-88-3	Toluene	ND	5.00		ug/L
100-41-4	Ethylbenzene	ND	5.00		ug/L
1330-20-7	Xylene (total)	ND	15.0		ug/L
91-20-3	**Naphthalene**	**38.9**	**25.0**		**ug/L**
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	5.00		ug/L
107-06-2	1,2-Dichloroethane	ND	25.0		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	257	ug/L	103	78 - 130
1868-53-7	Dibromofluoromethane	250	228	ug/L	91	77 - 127
2037-26-5	Toluene d8	250	241	ug/L	96	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	271	ug/L	108	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	1	06/24/2008 16:41	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.9		ug/L
208-96-8	Acenaphthylene	ND	10.9		ug/L
120-12-7	Anthracene	ND	10.9		ug/L
56-55-3	Benzo(a)anthracene	ND	10.9		ug/L
50-32-8	Benzo(a)pyrene	ND	10.9		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.9		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.9		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.9		ug/L
218-01-9	Chrysene	ND	10.9		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.9		ug/L
206-44-0	Fluoranthene	ND	10.9		ug/L
86-73-7	Fluorene	ND	10.9		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.9		ug/L
91-20-3	**Naphthalene**	**25.8**	**10.9**		**ug/L**
85-01-8	Phenanthrene	ND	10.9		ug/L
129-00-0	Pyrene	ND	10.9		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	54.3	43.4	ug/L	80	52 - 110
321-60-8	2-Fluorobiphenyl	54.3	39.3	ug/L	72	16 - 128
1718-51-0	Terphenyl-d14	54.3	52.2	ug/L	96	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200506	MW-13R	Water	06/18/2008 16:00	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/26/2008 01:09	ADI	391579

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**12100**	**100**		ug/L
108-88-3	**Toluene**	**5120**	**100**		ug/L
100-41-4	**Ethylbenzene**	**2370**	**100**		ug/L
1330-20-7	**Xylene (total)**	**11400**	**300**		ug/L
91-20-3	**Naphthalene**	**1250**	**500**		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**1450**	**100**		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5670	ug/L	113	78 - 130
1868-53-7	Dibromofluoromethane	5000	4380	ug/L	88	77 - 127
2037-26-5	Toluene d8	5000	4840	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5450	ug/L	109	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 10:00	391267	3510C	10	06/24/2008 17:42	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	102		ug/L
208-96-8	Acenaphthylene	ND	102		ug/L
120-12-7	Anthracene	ND	102		ug/L
56-55-3	Benzo(a)anthracene	ND	102		ug/L
50-32-8	Benzo(a)pyrene	ND	102		ug/L
205-99-2	Benzo(b)fluoranthene	ND	102		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	102		ug/L
207-08-9	Benzo(k)fluoranthene	ND	102		ug/L
218-01-9	Chrysene	ND	102		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	102		ug/L
206-44-0	Fluoranthene	ND	102		ug/L
86-73-7	Fluorene	ND	102		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	102		ug/L
91-20-3	**Naphthalene**	**972**	**102**		**ug/L**
85-01-8	Phenanthrene	ND	102		ug/L
129-00-0	Pyrene	ND	102		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	0	ug/L	0*	52 - 110
321-60-8	2-Fluorobiphenyl	51	0	ug/L	0*	16 - 128
1718-51-0	Terphenyl-d14	51	0	ug/L	0*	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200507	MW-14B	Water	06/18/2008 15:20	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			500	06/26/2008 17:08	EGW	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**3730**	**500**		ug/L
108-88-3	**Toluene**	**24700**	**500**		ug/L
100-41-4	**Ethylbenzene**	**4780**	**500**		ug/L
1330-20-7	**Xylene (total)**	**19400**	**1500**		ug/L
91-20-3	**Naphthalene**	**3360**	**2500**		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	500		ug/L
107-06-2	1,2-Dichloroethane	ND	2500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	25000	30100	ug/L	120	78 - 130
1868-53-7	Dibromofluoromethane	25000	22400	ug/L	90	77 - 127
2037-26-5	Toluene d8	25000	22900	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	25000	19700	ug/L	79	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	10	06/25/2008 15:52	KNB	391544

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	108		ug/L
208-96-8	Acenaphthylene	ND	108		ug/L
120-12-7	Anthracene	ND	108		ug/L
56-55-3	Benzo(a)anthracene	ND	108		ug/L
50-32-8	Benzo(a)pyrene	ND	108		ug/L
205-99-2	Benzo(b)fluoranthene	ND	108		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	108		ug/L
207-08-9	Benzo(k)fluoranthene	ND	108		ug/L
218-01-9	Chrysene	ND	108		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	108		ug/L
206-44-0	Fluoranthene	ND	108		ug/L
86-73-7	Fluorene	ND	108		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	108		ug/L
91-20-3	**Naphthalene**	**1520**	**108**		ug/L
85-01-8	Phenanthrene	ND	108		ug/L
129-00-0	Pyrene	ND	108		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.8	45.3	ug/L	84	52 - 110
321-60-8	2-Fluorobiphenyl	53.8	48	ug/L	89	16 - 128
1718-51-0	Terphenyl-d14	53.8	55.9	ug/L	104	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200508	MW-15	Water	06/19/2008 13:20	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 14:05	EGW	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**21.1**	**1.00**		ug/L
108-88-3	**Toluene**	**3.45**	**1.00**		ug/L
100-41-4	**Ethylbenzene**	**5.07**	**1.00**		ug/L
1330-20-7	**Xylene (total)**	**12.8**	**3.00**		ug/L
91-20-3	**Naphthalene**	**6.34**	**5.00**		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**31.1**	**1.00**		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	56.7	ug/L	113	78 - 130
1868-53-7	Dibromofluoromethane	50	34.7	ug/L	**69***	77 - 127
2037-26-5	Toluene d8	50	47.2	ug/L	94	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	39.2	ug/L	78	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 19:28	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.2		ug/L
208-96-8	Acenaphthylene	ND	10.2		ug/L
120-12-7	Anthracene	ND	10.2		ug/L
56-55-3	Benzo(a)anthracene	ND	10.2		ug/L
50-32-8	Benzo(a)pyrene	ND	10.2		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.2		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.2		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.2		ug/L
218-01-9	Chrysene	ND	10.2		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.2		ug/L
206-44-0	Fluoranthene	ND	10.2		ug/L
86-73-7	Fluorene	ND	10.2		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.2		ug/L
91-20-3	Naphthalene	ND	10.2		ug/L
85-01-8	Phenanthrene	ND	10.2		ug/L
129-00-0	Pyrene	ND	10.2		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	40.5	ug/L	79	52 - 110
321-60-8	2-Fluorobiphenyl	51	37.8	ug/L	74	16 - 128
1718-51-0	Terphenyl-d14	51	48.7	ug/L	95	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200509	MW-16	Water	06/18/2008 14:40	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 06:33	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.2	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	50	59.2	ug/L	118	77 - 127
2037-26-5	Toluene d8	50	51.5	ug/L	103	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	60.1	ug/L	120	71 - 127

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200510	MW-18R	Water	06/18/2008 14:20	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 06:58	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	45.9	ug/L	92	78 - 130
1868-53-7	Dibromofluoromethane	50	61.7	ug/L	123	77 - 127
2037-26-5	Toluene d8	50	50	ug/L	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	60.6	ug/L	121	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 19:44	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.1		ug/L
208-96-8	Acenaphthylene	ND	10.1		ug/L
120-12-7	Anthracene	ND	10.1		ug/L
56-55-3	Benzo(a)anthracene	ND	10.1		ug/L
50-32-8	Benzo(a)pyrene	ND	10.1		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.1		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.1		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.1		ug/L
218-01-9	Chrysene	ND	10.1		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.1		ug/L
206-44-0	Fluoranthene	ND	10.1		ug/L
86-73-7	Fluorene	ND	10.1		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.1		ug/L
91-20-3	Naphthalene	ND	10.1		ug/L
85-01-8	Phenanthrene	ND	10.1		ug/L
129-00-0	Pyrene	ND	10.1		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	40.8	ug/L	81	52 - 110
321-60-8	2-Fluorobiphenyl	50.5	35.9	ug/L	71	16 - 128
1718-51-0	Terphenyl-d14	50.5	47.2	ug/L	93	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200511	MW-19R	Water	06/18/2008 13:50	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 07:20	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**66.5**	**1.00**		**ug/L**
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	45.6	ug/L	91	78 - 130
1868-53-7	Dibromofluoromethane	50	58.4	ug/L	117	77 - 127
2037-26-5	Toluene d8	50	48.3	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	56.1	ug/L	112	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 19:59	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.9		ug/L
208-96-8	Acenaphthylene	ND	10.9		ug/L
120-12-7	Anthracene	ND	10.9		ug/L
56-55-3	Benzo(a)anthracene	ND	10.9		ug/L
50-32-8	Benzo(a)pyrene	ND	10.9		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.9		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.9		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.9		ug/L
218-01-9	Chrysene	ND	10.9		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.9		ug/L
206-44-0	Fluoranthene	ND	10.9		ug/L
86-73-7	Fluorene	ND	10.9		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.9		ug/L
91-20-3	Naphthalene	ND	10.9		ug/L
85-01-8	Phenanthrene	ND	10.9		ug/L
129-00-0	Pyrene	ND	10.9		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	54.3	46.3	ug/L	85	52 - 110
321-60-8	2-Fluorobiphenyl	54.3	40.3	ug/L	74	16 - 128
1718-51-0	Terphenyl-d14	54.3	45.6	ug/L	84	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200512	MW-21	Water	06/18/2008 08:00	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 07:43	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.1	ug/L	92	78 - 130
1868-53-7	Dibromofluoromethane	50	61.7	ug/L	123	77 - 127
2037-26-5	Toluene d8	50	48.8	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	58.6	ug/L	117	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 20:14	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.4		ug/L
208-96-8	Acenaphthylene	ND	10.4		ug/L
120-12-7	Anthracene	ND	10.4		ug/L
56-55-3	Benzo(a)anthracene	ND	10.4		ug/L
50-32-8	Benzo(a)pyrene	ND	10.4		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.4		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.4		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.4		ug/L
218-01-9	Chrysene	ND	10.4		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.4		ug/L
206-44-0	Fluoranthene	ND	10.4		ug/L
86-73-7	Fluorene	ND	10.4		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.4		ug/L
91-20-3	Naphthalene	ND	10.4		ug/L
85-01-8	Phenanthrene	ND	10.4		ug/L
129-00-0	Pyrene	ND	10.4		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	52.1	45	ug/L	86	52 - 110
321-60-8	2-Fluorobiphenyl	52.1	41.5	ug/L	80	16 - 128
1718-51-0	Terphenyl-d14	52.1	49.4	ug/L	95	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200513	MW-22	Water	06/18/2008 09:10	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 08:07	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.7	ug/L	93	78 - 130
1868-53-7	Dibromofluoromethane	50	59.3	ug/L	119	77 - 127
2037-26-5	Toluene d8	50	50	ug/L	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	58.9	ug/L	118	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 20:29	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.1		ug/L
208-96-8	Acenaphthylene	ND	10.1		ug/L
120-12-7	Anthracene	ND	10.1		ug/L
56-55-3	Benzo(a)anthracene	ND	10.1		ug/L
50-32-8	Benzo(a)pyrene	ND	10.1		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.1		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.1		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.1		ug/L
218-01-9	Chrysene	ND	10.1		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.1		ug/L
206-44-0	Fluoranthene	ND	10.1		ug/L
86-73-7	Fluorene	ND	10.1		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.1		ug/L
91-20-3	Naphthalene	ND	10.1		ug/L
85-01-8	Phenanthrene	ND	10.1		ug/L
129-00-0	Pyrene	ND	10.1		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	41.1	ug/L	81	52 - 110
321-60-8	2-Fluorobiphenyl	50.5	37.6	ug/L	74	16 - 128
1718-51-0	Terphenyl-d14	50.5	44.7	ug/L	89	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200514	MW-22D	Water	06/18/2008 09:30	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 08:30	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	49.2	ug/L	98	78 - 130
1868-53-7	Dibromofluoromethane	50	61.3	ug/L	123	77 - 127
2037-26-5	Toluene d8	50	53.7	ug/L	107	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	61.9	ug/L	124	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 20:44	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.1		ug/L
208-96-8	Acenaphthylene	ND	10.1		ug/L
120-12-7	Anthracene	ND	10.1		ug/L
56-55-3	Benzo(a)anthracene	ND	10.1		ug/L
50-32-8	Benzo(a)pyrene	ND	10.1		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.1		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.1		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.1		ug/L
218-01-9	Chrysene	ND	10.1		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.1		ug/L
206-44-0	Fluoranthene	ND	10.1		ug/L
86-73-7	Fluorene	ND	10.1		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.1		ug/L
91-20-3	Naphthalene	ND	10.1		ug/L
85-01-8	Phenanthrene	ND	10.1		ug/L
129-00-0	Pyrene	ND	10.1		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	25.5	ug/L	50*	52 - 110
321-60-8	2-Fluorobiphenyl	50.5	22.3	ug/L	44	16 - 128
1718-51-0	Terphenyl-d14	50.5	31.7	ug/L	63	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200515	MW-24	Water	06/18/2008 12:10	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 08:54	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.8	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	50	61.2	ug/L	122	77 - 127
2037-26-5	Toluene d8	50	51	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	58.5	ug/L	117	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 20:59	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.8		ug/L
208-96-8	Acenaphthylene	ND	10.8		ug/L
120-12-7	Anthracene	ND	10.8		ug/L
56-55-3	Benzo(a)anthracene	ND	10.8		ug/L
50-32-8	Benzo(a)pyrene	ND	10.8		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.8		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.8		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.8		ug/L
218-01-9	Chrysene	ND	10.8		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.8		ug/L
206-44-0	Fluoranthene	ND	10.8		ug/L
86-73-7	Fluorene	ND	10.8		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.8		ug/L
91-20-3	Naphthalene	ND	10.8		ug/L
85-01-8	Phenanthrene	ND	10.8		ug/L
129-00-0	Pyrene	ND	10.8		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.8	48	ug/L	89	52 - 110
321-60-8	2-Fluorobiphenyl	53.8	40.5	ug/L	75	16 - 128
1718-51-0	Terphenyl-d14	53.8	49.7	ug/L	92	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200516	MW-25	Water	06/18/2008 11:00	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 14:28	ADI	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**71.0**	**1.00**		ug/L
108-88-3	**Toluene**	**1.39**	**1.00**		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	**Xylene (total)**	**5.77**	**3.00**		ug/L
91-20-3	**Naphthalene**	**26.1**	**5.00**		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**151**	**1.00**		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	56.8	ug/L	114	78 - 130
1868-53-7	Dibromofluoromethane	50	34.5	ug/L	**69***	77 - 127
2037-26-5	Toluene d8	50	47.1	ug/L	94	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	41.5	ug/L	83	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 21:15	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.3		ug/L
208-96-8	Acenaphthylene	ND	10.3		ug/L
120-12-7	Anthracene	ND	10.3		ug/L
56-55-3	Benzo(a)anthracene	ND	10.3		ug/L
50-32-8	Benzo(a)pyrene	ND	10.3		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.3		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.3		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.3		ug/L
218-01-9	Chrysene	ND	10.3		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.3		ug/L
206-44-0	Fluoranthene	ND	10.3		ug/L
86-73-7	Fluorene	ND	10.3		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.3		ug/L
91-20-3	**Naphthalene**	**29.6**	**10.3**		**ug/L**
85-01-8	Phenanthrene	ND	10.3		ug/L
129-00-0	Pyrene	ND	10.3		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	41.6	ug/L	81	52 - 110
321-60-8	2-Fluorobiphenyl	51.5	35.4	ug/L	69	16 - 128
1718-51-0	Terphenyl-d14	51.5	48.4	ug/L	94	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200517	MW-26	Water	06/18/2008 11:30	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			250	06/26/2008 16:00	ADI	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3080	250		ug/L
108-88-3	Toluene	20500	250		ug/L
100-41-4	Ethylbenzene	3450	250		ug/L
1330-20-7	Xylene (total)	16200	750		ug/L
91-20-3	Naphthalene	2120	1250		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	250		ug/L
107-06-2	1,2-Dichloroethane	ND	1250		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	12500	14900	ug/L	119	78 - 130
1868-53-7	Dibromofluoromethane	12500	11200	ug/L	90	77 - 127
2037-26-5	Toluene d8	12500	11000	ug/L	88	76 - 134
17060-07-0	1,2-Dichloroethane-d4	12500	9780	ug/L	78	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	5	06/25/2008 16:07	KNB	391544

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	53.8		ug/L
208-96-8	Acenaphthylene	ND	53.8		ug/L
120-12-7	Anthracene	ND	53.8		ug/L
56-55-3	Benzo(a)anthracene	ND	53.8		ug/L
50-32-8	Benzo(a)pyrene	ND	53.8		ug/L
205-99-2	Benzo(b)fluoranthene	ND	53.8		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	53.8		ug/L
207-08-9	Benzo(k)fluoranthene	ND	53.8		ug/L
218-01-9	Chrysene	ND	53.8		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	53.8		ug/L
206-44-0	Fluoranthene	ND	53.8		ug/L
86-73-7	Fluorene	ND	53.8		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	53.8		ug/L
91-20-3	Naphthalene	625	53.8		ug/L
85-01-8	Phenanthrene	ND	53.8		ug/L
129-00-0	Pyrene	ND	53.8		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.8	40.5	ug/L	75	52 - 110
321-60-8	2-Fluorobiphenyl	53.8	42	ug/L	78	16 - 128
1718-51-0	Terphenyl-d14	53.8	53.4	ug/L	99	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200518	MW-27	Water	06/18/2008 10:30	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 09:16	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	48	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	50	61.3	ug/L	123	77 - 127
2037-26-5	Toluene d8	50	53	ug/L	106	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	61.4	ug/L	123	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 21:45	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.6		ug/L
208-96-8	Acenaphthylene	ND	10.6		ug/L
120-12-7	Anthracene	ND	10.6		ug/L
56-55-3	Benzo(a)anthracene	ND	10.6		ug/L
50-32-8	Benzo(a)pyrene	ND	10.6		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.6		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.6		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.6		ug/L
218-01-9	Chrysene	ND	10.6		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.6		ug/L
206-44-0	Fluoranthene	ND	10.6		ug/L
86-73-7	Fluorene	ND	10.6		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.6		ug/L
91-20-3	Naphthalene	ND	10.6		ug/L
85-01-8	Phenanthrene	ND	10.6		ug/L
129-00-0	Pyrene	ND	10.6		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.2	41	ug/L	77	52 - 110
321-60-8	2-Fluorobiphenyl	53.2	36.3	ug/L	68	16 - 128
1718-51-0	Terphenyl-d14	53.2	47.6	ug/L	89	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200519	PW-28	Water	06/18/2008 10:50	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 14:51	ADI	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	**Toluene**	**1.67**	**1.00**		**ug/L**
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	**Xylene (total)**	**5.56**	**3.00**		**ug/L**
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	56.4	ug/L	113	78 - 130
1868-53-7	Dibromofluoromethane	50	36.9	ug/L	**74***	77 - 127
2037-26-5	Toluene d8	50	47.6	ug/L	95	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	43.3	ug/L	87	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 22:00	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.4		ug/L
208-96-8	Acenaphthylene	ND	10.4		ug/L
120-12-7	Anthracene	ND	10.4		ug/L
56-55-3	Benzo(a)anthracene	ND	10.4		ug/L
50-32-8	Benzo(a)pyrene	ND	10.4		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.4		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.4		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.4		ug/L
218-01-9	Chrysene	ND	10.4		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.4		ug/L
206-44-0	Fluoranthene	ND	10.4		ug/L
86-73-7	Fluorene	ND	10.4		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.4		ug/L
91-20-3	Naphthalene	ND	10.4		ug/L
85-01-8	Phenanthrene	ND	10.4		ug/L
129-00-0	Pyrene	ND	10.4		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	52.1	34.8	ug/L	67	52 - 110
321-60-8	2-Fluorobiphenyl	52.1	34.2	ug/L	66	16 - 128
1718-51-0	Terphenyl-d14	52.1	42.3	ug/L	81	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200520	MW-29	Water	06/18/2008 10:10	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/23/2008 09:40	AEL	391374

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	45.8	ug/L	92	78 - 130
1868-53-7	Dibromofluoromethane	50	64	ug/L	128*	77 - 127
2037-26-5	Toluene d8	50	51.1	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	60.9	ug/L	122	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 22:16	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.2		ug/L
208-96-8	Acenaphthylene	ND	10.2		ug/L
120-12-7	Anthracene	ND	10.2		ug/L
56-55-3	Benzo(a)anthracene	ND	10.2		ug/L
50-32-8	Benzo(a)pyrene	ND	10.2		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.2		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.2		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.2		ug/L
218-01-9	Chrysene	ND	10.2		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.2		ug/L
206-44-0	Fluoranthene	ND	10.2		ug/L
86-73-7	Fluorene	ND	10.2		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.2		ug/L
91-20-3	Naphthalene	ND	10.2		ug/L
85-01-8	Phenanthrene	ND	10.2		ug/L
129-00-0	Pyrene	ND	10.2		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	45.3	ug/L	89	52 - 110
321-60-8	2-Fluorobiphenyl	51	37.3	ug/L	73	16 - 128
1718-51-0	Terphenyl-d14	51	49.8	ug/L	98	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200521	MW-30	Water	06/18/2008 10:00	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 15:14	ADI	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	56.7	ug/L	113	78 - 130
1868-53-7	Dibromofluoromethane	50	40	ug/L	80	77 - 127
2037-26-5	Toluene d8	50	47.6	ug/L	95	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	41.8	ug/L	84	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 22:31	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.6		ug/L
208-96-8	Acenaphthylene	ND	10.6		ug/L
120-12-7	Anthracene	ND	10.6		ug/L
56-55-3	Benzo(a)anthracene	ND	10.6		ug/L
50-32-8	Benzo(a)pyrene	ND	10.6		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.6		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.6		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.6		ug/L
218-01-9	Chrysene	ND	10.6		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.6		ug/L
206-44-0	Fluoranthene	ND	10.6		ug/L
86-73-7	Fluorene	ND	10.6		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.6		ug/L
91-20-3	Naphthalene	ND	10.6		ug/L
85-01-8	Phenanthrene	ND	10.6		ug/L
129-00-0	Pyrene	ND	10.6		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	53.2	45.8	ug/L	86	52 - 110
321-60-8	2-Fluorobiphenyl	53.2	37.9	ug/L	71	16 - 128
1718-51-0	Terphenyl-d14	53.2	52.3	ug/L	98	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200522	PW-31	Water	06/18/2008 13:20	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			250	06/26/2008 17:32	EGW	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**6970**	**250**		**ug/L**
108-88-3	**Toluene**	**16900**	**250**		**ug/L**
100-41-4	**Ethylbenzene**	**2540**	**250**		**ug/L**
1330-20-7	**Xylene (total)**	**9360**	**750**		**ug/L**
91-20-3	**Naphthalene**	**1660**	**1250**		**ug/L**
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**568**	**250**		**ug/L**
107-06-2	1,2-Dichloroethane	ND	1250		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	12500	15000	ug/L	120	78 - 130
1868-53-7	Dibromofluoromethane	12500	10700	ug/L	86	77 - 127
2037-26-5	Toluene d8	12500	11500	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	12500	11600	ug/L	93	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	5	06/25/2008 16:23	KNB	391544

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	54.3		ug/L
208-96-8	Acenaphthylene	ND	54.3		ug/L
120-12-7	Anthracene	ND	54.3		ug/L
56-55-3	Benzo(a)anthracene	ND	54.3		ug/L
50-32-8	Benzo(a)pyrene	ND	54.3		ug/L
205-99-2	Benzo(b)fluoranthene	ND	54.3		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	54.3		ug/L
207-08-9	Benzo(k)fluoranthene	ND	54.3		ug/L
218-01-9	Chrysene	ND	54.3		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	54.3		ug/L
206-44-0	Fluoranthene	ND	54.3		ug/L
86-73-7	Fluorene	ND	54.3		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54.3		ug/L
91-20-3	**Naphthalene**	**363**	**54.3**		**ug/L**
85-01-8	Phenanthrene	ND	54.3		ug/L
129-00-0	Pyrene	ND	54.3		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	54.3	35.5	ug/L	65	52 - 110
321-60-8	2-Fluorobiphenyl	54.3	31.6	ug/L	58	16 - 128
1718-51-0	Terphenyl-d14	54.3	36	ug/L	66	43 - 138

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20806200523	MW-33	Water	06/18/2008 08:40	06/20/2008 09:27

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/26/2008 15:36	ADI	391640

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	56.1	ug/L	112	78 - 130
1868-53-7	Dibromofluoromethane	50	43.1	ug/L	86	77 - 127
2037-26-5	Toluene d8	50	47.4	ug/L	95	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	39.9	ug/L	80	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/20/2008 13:00	391294	3510C	1	06/24/2008 23:02	KNB	391481

CAS#	Parameter	Result	RDL	REG LIMIT	Units
83-32-9	Acenaphthene	ND	10.1		ug/L
208-96-8	Acenaphthylene	ND	10.1		ug/L
120-12-7	Anthracene	ND	10.1		ug/L
56-55-3	Benzo(a)anthracene	ND	10.1		ug/L
50-32-8	Benzo(a)pyrene	ND	10.1		ug/L
205-99-2	Benzo(b)fluoranthene	ND	10.1		ug/L
191-24-2	Benzo(g,h,i)perylene	ND	10.1		ug/L
207-08-9	Benzo(k)fluoranthene	ND	10.1		ug/L
218-01-9	Chrysene	ND	10.1		ug/L
53-70-3	Dibenz(a,h)anthracene	ND	10.1		ug/L
206-44-0	Fluoranthene	ND	10.1		ug/L
86-73-7	Fluorene	ND	10.1		ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.1		ug/L
91-20-3	Naphthalene	ND	10.1		ug/L
85-01-8	Phenanthrene	ND	10.1		ug/L
129-00-0	Pyrene	ND	10.1		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	37.2	ug/L	74	52 - 110
321-60-8	2-Fluorobiphenyl	50.5	35.6	ug/L	70	16 - 128
1718-51-0	Terphenyl-d14	50.5	45.7	ug/L	90	43 - 138

GC/MS Volatiles Quality Control Summary

Analytical Batch 391374	Client ID	MB391374			LCS391374			LCSD391374			
Prep Batch N/A	GCAL ID	617307			617308			617309			
	Sample Type	Method Blank			LCS			LCSD			
	Analytical Date	06/23/2008 01:59			06/23/2008 00:03			06/23/2008 00:49			
	Matrix	Water			Water			Water			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**% R**	**Control Limits %R**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	ND	5.00	50.0	51.8	104	75 - 122	52.2	104	0.8	30
100-41-4	Ethylbenzene	ND	1.00	50.0	46.6	93	80 - 125	48.8	98	5	30
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00	50.0	56.8	114	72 - 127	56.1	112	1	30
1330-20-7	Xylene (total)	ND	3.00	150	133	89	80 - 129	142	95	7	30
91-20-3	Naphthalene	ND	5.00	50.0	48.3	97	67 - 149	51.2	102	6	35
71-43-2	Benzene	ND	1.00	50.0	55.2	110	80 - 120	55.9	112	1	11
108-88-3	Toluene	ND	1.00	50.0	47.0	94	80 - 124	48.5	97	3	13
Surrogate											
460-00-4	4-Bromofluorobenzene	49.2	98	50	46.7	93	78 - 130	48	96		
1868-53-7	Dibromofluoromethane	58.7	117	50	57.2	114	77 - 127	58.6	117		
2037-26-5	Toluene d8	52.3	105	50	48.3	97	76 - 134	48.4	97		
17060-07-0	1,2-Dichloroethane-d4	59.5	119	50	55.3	111	71 - 127	57.5	115		

Analytical Batch 391579	Client ID	MB391579			LCS391579			LCSD391579			
Prep Batch N/A	GCAL ID	618256			618257			618258			
	Sample Type	Method Blank			LCS			LCSD			
	Analytical Date	06/25/2008 21:39			06/25/2008 20:31			06/25/2008 20:54			
	Matrix	Water			Water			Water			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**% R**	**Control Limits %R**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	ND	5.00	50.0	54.9	110	75 - 122	51.2	102	7	30
100-41-4	Ethylbenzene	ND	1.00	50.0	53.4	107	80 - 125	50.5	101	6	30
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00	50.0	55.5	111	72 - 127	53.9	108	3	30
1330-20-7	Xylene (total)	ND	3.00	100	108	108	80 - 129	99.9	100	8	30
91-20-3	Naphthalene	ND	5.00	50.0	50.2	100	67 - 149	48.3	97	4	35
71-43-2	Benzene	ND	1.00	50.0	56.5	113	80 - 120	53.8	108	5	11
108-88-3	Toluene	ND	1.00	50.0	58.8	118	80 - 124	55.4	111	6	13
Surrogate											
460-00-4	4-Bromofluorobenzene	52.8	106	50	61.9	124	78 - 130	61.1	122		
1868-53-7	Dibromofluoromethane	50.3	101	50	48.6	97	77 - 127	49.5	99		
2037-26-5	Toluene d8	50.2	100	50	51.1	102	76 - 134	49.2	98		
17060-07-0	1,2-Dichloroethane-d4	44.1	88	50	58.1	116	71 - 127	50.5	101		

GC/MS Volatiles Quality Control Summary

Analytical Batch 391579	Client ID	MW-6		616577MS			616577MSD			
Prep Batch N/A	GCAL ID	20806200501		618744			618745			
	Sample Type	SAMPLE		MS			MSD			
	Analytical Date	06/25/2008 22:03		06/25/2008 22:25			06/25/2008 22:48			
	Matrix	Water		Water			Water			
SW-846 8260B	Units	ug/L	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
107-06-2 1,2-Dichloroethane	0.00	500	5000	7170	143*	75 - 122	5530	111	26	30
100-41-4 Ethylbenzene	0.00	100	5000	4950	99	80 - 125	4690	94	5	30
1634-04-4 tert-Butyl methyl ether (MTBE)	15100	100	5000	20500	108	72 - 127	19500	88	5	30
1330-20-7 Xylene (total)	0.00	300	15000	9920	66*	80 - 129	9560	64*	4	30
91-20-3 Naphthalene	0.00	500	5000	4590	92	67 - 149	4620	92	0.7	30
71-43-2 Benzene	6760	100	5000	11800	101	80 - 120	10900	83	8	30
108-88-3 Toluene	0.00	100	5000	5480	110	80 - 124	5200	104	5	30
Surrogate										
460-00-4 4-Bromofluorobenzene	5460	109	5000	5860	117	78 - 130	5820	116		
1868-53-7 Dibromofluoromethane	4720	94	5000	4820	96	77 - 127	4590	92		
2037-26-5 Toluene d8	4870	97	5000	4820	96	76 - 134	4800	96		
17060-07-0 1,2-Dichloroethane-d4	5950	119	5000	5820	116	71 - 127	5580	112		

Analytical Batch 391640	Client ID	MB391640		LCS391640			LCSD391640			
Prep Batch N/A	GCAL ID	618741		618742			618743			
	Sample Type	Method Blank		LCS			LCSD			
	Analytical Date	06/26/2008 09:49		06/26/2008 08:42			06/26/2008 09:04			
	Matrix	Water		Water			Water			
SW-846 8260B	Units	ug/L	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
107-06-2 1,2-Dichloroethane	ND	5.00	50.0	71.4	143*	75 - 122	54.7	109	26	30
100-41-4 Ethylbenzene	ND	1.00	50.0	50.1	100	80 - 125	48.2	96	4	30
1634-04-4 tert-Butyl methyl ether (MTBE)	ND	1.00	50.0	53.5	107	72 - 127	50.6	101	6	30
1330-20-7 Xylene (total)	ND	3.00	100	100	100	80 - 129	97.1	97	3	30
91-20-3 Naphthalene	ND	5.00	50.0	47.5	95	67 - 149	45.8	92	4	35
71-43-2 Benzene	ND	1.00	50.0	53.9	108	80 - 120	51.8	104	4	11
108-88-3 Toluene	ND	1.00	50.0	55.3	111	80 - 124	53.6	107	3	13
Surrogate										
460-00-4 4-Bromofluorobenzene	54.8	110	50	57.9	116	78 - 130	57.2	114		
1868-53-7 Dibromofluoromethane	48.3	97	50	45.2	90	77 - 127	44.7	89		
2037-26-5 Toluene d8	50.1	100	50	47.1	94	76 - 134	47	94		
17060-07-0 1,2-Dichloroethane-d4	43.4	87	50	58.5	117	71 - 127	55.8	112		

GC/MS Semi-Volatiles Quality Control Summary

Analytical Batch	391424	Client ID	MB391267			LCS391267			LCSD391267			
Prep Batch	391267	GCAL ID	616586			616587			616588			
Prep Method	3510C	Sample Type	Method Blank			LCS			LCSD			
		Prep Date	06/20/2008 10:00			06/20/2008 10:00			06/20/2008 10:00			
		Analytical Date	06/23/2008 12:52			06/23/2008 13:07			06/23/2008 13:22			
		Matrix	Water			Water			Water			
SW-846 8270C		Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
208-96-8	Acenaphthylene		ND	10.0	100	92.9	93	55 - 120	88.2	88	5	50
120-12-7	Anthracene		ND	10.0	100	98.2	98	58 - 120	97.6	98	0.6	50
56-55-3	Benzo(a)anthracene		ND	10.0	100	96.5	97	56 - 120	87.3	87	10	50
205-99-2	Benzo(b)fluoranthene		ND	10.0	100	89.5	90	55 - 120	66.2	66	30	50
207-08-9	Benzo(k)fluoranthene		ND	10.0	100	70.5	71	49 - 121	83.5	84	17	50
191-24-2	Benzo(g,h,i)perylene		ND	10.0	100	93.6	94	44 - 132	89.1	89	5	50
50-32-8	Benzo(a)pyrene		ND	10.0	100	76.9	77	56 - 120	73.7	74	4	50
218-01-9	Chrysene		ND	10.0	98.0	105	107	58 - 120	94.2	96	11	50
53-70-3	Dibenz(a,h)anthracene		ND	10.0	100	81.0	81	50 - 138	77.3	77	5	50
206-44-0	Fluoranthene		ND	10.0	100	98.3	98	55 - 120	97.2	97	1	50
86-73-7	Fluorene		ND	10.0	100	90.1	90	54 - 120	91.2	91	1	50
193-39-5	Indeno(1,2,3-cd)pyrene		ND	10.0	100	113	113	43 - 133	99.5	100	13	50
91-20-3	Naphthalene		ND	10.0	100	86.9	87	44 - 120	80.6	81	8	50
85-01-8	Phenanthrene		ND	10.0	100	93.9	94	58 - 120	92.7	93	1	50
83-32-9	Acenaphthene		ND	10.0	100	91.4	91	52 - 120	89.1	89	3	32
129-00-0	Pyrene		ND	10.0	100	98.7	99	54 - 120	90.2	90	9	30
Surrogate												
4165-60-0	Nitrobenzene-d5		42.2	84	50	43.5	87	52 - 110	40.7	81		
321-60-8	2-Fluorobiphenyl		39.8	80	50	41.2	82	16 - 128	40.2	80		
1718-51-0	Terphenyl-d14		41.8	84	50	44.6	89	43 - 138	41.4	83		

Analytical Batch	391481	Client ID	MB391294			LCS391294			LCSD391294			
Prep Batch	391294	GCAL ID	616723			616724			616725			
Prep Method	3510C	Sample Type	Method Blank			LCS			LCSD			
		Prep Date	06/20/2008 13:00			06/20/2008 13:00			06/20/2008 13:00			
		Analytical Date	06/24/2008 17:57			06/24/2008 18:12			06/24/2008 18:27			
		Matrix	Water			Water			Water			
SW-846 8270C		Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
208-96-8	Acenaphthylene		ND	10.0	100	93.6	94	55 - 120	101	101	8	50
120-12-7	Anthracene		ND	10.0	100	88.5	89	58 - 120	90.6	91	2	50

GC/MS Semi-Volatiles Quality Control Summary

Analytical Batch 391481		**Client ID**	MB391294		LCS391294				LCSD391294			
Prep Batch 391294		**GCAL ID**	616723		616724				616725			
Prep Method 3510C		**Sample Type**	Method Blank		LCS				LCSD			
		Prep Date	06/20/2008 13:00		06/20/2008 13:00				06/20/2008 13:00			
		Analytical Date	06/24/2008 17:57		06/24/2008 18:12				06/24/2008 18:27			
		Matrix	Water		Water				Water			
SW-846 8270C		**Units**	ug/L	**Spike Added**	**Result**	**Result % R**	**Control Limits % R**		**Result**	**% R**	**RPD**	**RPD Limit**
56-55-3	Benzo(a)anthracene	ND	10.0	100	93.3	93	56 - 120		106	106	13	50
205-99-2	Benzo(b)fluoranthene	ND	10.0	100	71.4	71	55 - 120		78.3	78	9	50
207-08-9	Benzo(k)fluoranthene	ND	10.0	100	80.1	80	49 - 121		85.1	85	6	50
191-24-2	Benzo(g,h,i)perylene	ND	10.0	100	83.8	84	44 - 132		88.8	89	6	50
50-32-8	Benzo(a)pyrene	ND	10.0	100	70.8	71	56 - 120		77.5	78	9	50
218-01-9	Chrysene	ND	10.0	98.0	86.9	89	58 - 120		92.6	94	6	50
53-70-3	Dibenz(a,h)anthracene	ND	10.0	100	79.9	80	50 - 138		85.6	86	7	50
206-44-0	Fluoranthene	ND	10.0	100	93.8	94	55 - 120		99.9	100	6	50
86-73-7	Fluorene	ND	10.0	100	87.7	88	54 - 120		97.0	97	10	50
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10.0	100	102	102	43 - 133		105	105	3	50
91-20-3	Naphthalene	ND	10.0	100	80.2	80	44 - 120		87.0	87	8	50
85-01-8	Phenanthrene	ND	10.0	100	90.2	90	58 - 120		94.3	94	4	50
83-32-9	Acenaphthene	ND	10.0	100	85.2	85	52 - 120		92.0	92	8	32
129-00-0	Pyrene	ND	10.0	100	91.1	91	54 - 120		100	100	9	30
Surrogate												
4165-60-0	Nitrobenzene-d5	39.7	79	50	39	78	52 - 110		41	82		
321-60-8	2-Fluorobiphenyl	36.6	73	50	39.6	79	16 - 128		41.4	83		
1718-51-0	Terphenyl-d14	44.2	88	50	43.2	86	43 - 138		45.8	92		

Access Analytical - Chain of Custody Record

Access/4365/70SEE2005/6.8703

Project Submission # 7304-8013 PO # _____ Laboratory ID: _____

Company Name: Terracon
Report To: Melissa Roberts
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Phone: 803-741-9000 Fax:
Email:
Project Name: SC-576
Sampled By (print): William Waller

Preservative: (* see codes below)

* Preservative Codes (place corresponding # in block above analysis field): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

ACCESS ANALYTICAL, INC.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	* REQUESTED LAB ANALYSIS:	B, N, MTBE, 1,2-DCA	PAHs					NOTES / COMMENTS
MW-6	6/19/08	1130	L	3		2	1				1	
MW-8R	↓	930	↓	↓		↓	↓				2	
MW-9B	↓	900	↓	↓		↓	↓				3	
MW-10R	↓	840	↓	↓		↓	↓				4	
MW-12R	6/18/08	1640	↓	↓		↓	↓				5	
MW-13R	↓	1600	↓	↓		↓	↓				6	
MW-14B	↓	1520	↓	↓		↓	↓				7	
MW-15	6/19/08	1320	↓	↓		↓	↓				8	
MW-16	6/18/08	1440	L	2		2	↓				9	
MW-18R	↓	1420	L	3		2	1				10	

Turnaround Time:
✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required: _____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice? ✓ Yes ___ No

Project Location: ✓ SC ___ NC ___ Other ___ (specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	6/19/08	1500	[signature]
Lou Cartter	6/19/08	1700	Fed Ex
[signature]	6-20-08	9:27:08	[signature]

Access Analytical, Inc.
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Access/4567/Rev06.2007/6-1703

Project Submission # 734-8012 **PO #** **Laboratory ID:**

Company Name:	Terracon
Report To:	Melissa Roberts
Address:	521 Clemson Rd
City:	Columbia State: SC Zip: 29229
Phone:	803-741-9000 Fax:
Email:	
Project Name:	SC-576
Sampled By (print):	William Walker

Preservative (Use codes below)

REQUESTED LAB ANALYSIS

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	B,N, MTBE, 1,2-DCA	PAHs						
MW-19R	6/19/08	1350	L	3	2	1						11
MW-21		800										12
MW-22		910										13
MW-22D		930										14
MW-24		1210										15
MW-25		1100										16
MW-26		1130										17
MW-27		1030										18
MW-28		1050										19
MW-29		1010										20

* Preservative Codes (Place corresponding # in Block above analyses field): 0=None, 1=HCL, 2=HNO3, 3=H2SO4, 4=NaOH, 5=Na2S2O3, 6=NaHSO4, Other=Specify

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Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

NOTES / COMMENTS

Turnaround Time:

✓ Std. (5-7 Bus. days)

___ RUSH*

*Date Required: _____

(For rush work, results faxed by end of business day on date required)

Samples Recd on Ice? ✓ Yes ___ No

Project Location: ✓ SC ___ NC ___ Other _____ (specify)

Relinquished By:	Date:	Time:	Received By:
	6/19/08	1500	
	6/19/08	1700	Fed Ex
Riley	6/20/08	917	JC

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Access/4363/20806200 5/67705

Project Submission # 7304-8013 **PO #** _____ **Laboratory ID:** _____

Company Name: Terracon

Report To: Melissa Roberts

Address: 521 Clemson Rd

City: Columbia State: SC Zip: 29229

Phone: 803-741-9000 Fax:

Email:

Project Name: SC-576

Sampled By (print): William Walker

Preservative (Free codes below)

REQUESTED LAB ANALYSIS

* Preservative Codes (place corresponding # in block above analysis field): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

ACCESS ANALYTICAL, INC.

7478 Carlisle Street
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	B, MTBE, 1,2-DCA	PAHs						NOTES / COMMENTS
MW-30	6/18/08	1000	L	3	2	1					21	
PW-31	↓	1320	↓	↓	↓	↓					22	
MW-33		840									23	

Turnaround Time:

✓ Std. (5-7 Bus. days)

___ RUSH*

*Date Required: _____

(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice: ✓ ___Yes ___No

Project Location: ✓ ___SC ___NC ___Other ___ (specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	6/19/08	1500	[signature]
[signature]	6/19/08	1700	Fed Ex
[signature]	6-20-08	929	[signature]

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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone 800-535-5053	4. Waste Tracking Number 001817

5. Generator's Name and Mailing Address SC576
Drake St Columbia SC 29203
Generator's Phone: 803-771-9000

Generator's Site Address (if different than mailing address)
TERRACON #1
7300 B13

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC. 877-682-0234 | U.S. EPA ID Number: SCR000766048

7. Transporter 2 Company Name | U.S. EPA ID Number

8. Designated Facility Name and Site Address: Diversified Recycling
132 Gretchens Terrace Rd West Columbia SC 29172
Facility's Phone: 803 463 5271 | U.S. EPA ID Number: SCR000768127

GENERATOR

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON RCRA NON Regulated Liquid	01	TT	70	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name | Signature | Month 7 | Day 2 | Year 08

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: James Scott | Signature | Month 7 | Day 2 | Year 08

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

LETTER OF TRANSMITTAL

Terracon

521 Clemson Rd.
Columbia, SC 29229
803-741-9000 / 803-741-9900 fax

RE

OCT

UNDERGROUND STORAGE TANK PROGRAM

TO Ms. Tiffany Jaspers

SCDHEC
Bureau of Land and Waste Management
UST Program
2600 Bull St.
Columbia, SC 29201

DATE 10/17/08	JOB NO. 73058013
RE: Former SC-576, McCormick, SC UST Site No. 06443; CA No. 31883	
AFVR Report	

WE ARE SENDING YOU **X** Attached ☐ Under separate cover via _____ the following items:

COPIES	DATE	DESCRIPTION
1	10/17/08	AFVR Report - Former SC-576

THESE ARE TRANSMITTED as checked below:

- ☐ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ Resubmit ___ copies for approval
- ☐ Submit ___ copies for distribution
- ☐ Return ___ corrected prints

REMARKS:

Enclosed is the AFVR Report for the above referenced site. Please feel free to call me if you have any questions.

COPY TO: _____

SIGNED: **Melissa Roberts**

If enclosures are not as noted, kindly notify us at once.

UST DOCKET
13 tech

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY

FORMER SC-576
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

Prepared for:

South Carolina Department of Health and Environmental Control

And

Crown Central LLC

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

October 17, 2008
Terracon Project No. 73058013

October 17, 2008

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

Ms. Tiffany Jaspers
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Aggressive Fluid/Vapor Recovery***
Former SC-576
201 N. Mine Street
McCormick, South Carolina
UST Permit # 06443; CA # 31883
Terracon Project No. 73058013

Dear Ms. Jaspers:

On behalf of Crown Central LLC, **Terracon Consultants, Inc** is pleased to submit this report of Aggressive Fluid/Vapor Recovery for the former SC-576 Facility located at 201 North Mine Street in McCormick, South Carolina. This report summarizes the five Aggressive Fluid Vapor Recovery (AFVR) events and our findings, conclusions, and recommendations.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.

Melissa Roberts, P.G.
Staff Geologist
S.C. Registration No. 2485

P. Michael Hudgins, P.G.
Senior Hydrogeologist
S.C. Registration No. 1137

Attachment

cc: Jim Janson / Crown Central LLC

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY
FORMER SC-576
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

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2.0 AGGRESSIVE FLUID VAPOR RECOVERY	2
3.0 CONCLUSIONS AND RECOMMENDATIONS	3

FIGURES

1 Site Location Map
2 Site Map

APPENDIX

A AFVR Field Data Sheets
B Disposal Manifests

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed five Aggressive Fluid Vapor Recovery (AFVR) events at the One Stop (SC-576) Facility, 201 N. Mine Street, McCormick, South Carolina. This work was performed in accordance with SCDHEC Cost Proposal No. 32775 and the SUPERB Allowable Costs document dated December 12, 2007. The purpose of the AFVR events was to extract multiple phase (vapor, dissolved, and free phase) petroleum hydrocarbon compounds from the unsaturated zone, capillary fringe, and the shallow aquifer following a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Two AVFR events were performed at this site in December 2007 to remove free-phase product from the subsurface. A total of approximately 2,563 pounds of volatile organic compounds (VOCs) were removed from the subsurface during the December 2007 events.

In April 2008, two AFVR events removed approximately 1,083 pounds of VOCs from the subsurface.

In June 2008, the SCDHEC requested AFVR events be performed at the site. AFVR is a proven remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (vapor, dissolved, and free phase) VOCs from the subsurface. This report includes a summary of the field methods utilized along with the ground water elevation measurements, field analytical results, and our conclusions and recommendations.

2.0 AGGRESSIVE FLUID VAPOR RECOVERY

Five AFVR events were conducted by Terracon in August and September 2008. AFVR was utilized to extract free-phase and dissolved-phase hydrocarbons from the unsaturated zone, capillary fringe, and the shallow aquifer at the site. Figure 2 is a site map showing AFVR and monitoring well locations referenced in the following discussion.

Free product thickness in the extraction wells was gauged at the beginning and the end of each AFVR event. Off-gas treatment was utilized during events 1, 2, 3, and 5 using three activated carbon canisters installed in series at the discharge of system off-gas. The velocity and VOC concentration of off-gas from the vacuum rig were measured before and after off gas treatment using an anemometer and a TLV Sniffer with a 10X dilution probe and recorded on AFVR field data sheets. Differential pressures (vacuum) measurements were obtained with a magnehelic gauge at monitoring wells surrounding the extraction wells and recorded on Radius of Influence data sheets. These field data sheets are included in Appendix A. A summary of the AFVR events is provided in the following table:

Event #	Date	Extraction Points	Depth to Water (ft)	Pre-AFVR FP thickness (ft)	Post-AFVR FP thickness (ft)	VOCs Recovered/ Emitted (lbs)
1	8/13/08	MW-20 MW-32	34.00 30.34	0.42 1.24	0.00 1.12	312 / 24
2	8/14/08	MW-32	30.42	0.98	0.65	111 / 11
3	8/15/08	MW-1 MW-2	> 30.08 29.09	Dry 0.05	Dry 0.03	646 / 196
4	9/17/08	MW-1 MW-2	30.17 30.53	Dry Dry	Dry 0.03	291 / 291*
5	9/18/08	MW-32	32.25	1.10	0.42	402 / 104
TOTAL						**1,762 / 626**

Notes: 1) * - Off-gas treatment was not utilized for this event.
2) A total of 725 gallons of water was produced for the 5 events.

As can be seen in the table above, a significant thickness of free product was measured in monitoring well MW-32 following Event 1. Following discussion with the SCDHEC project manager regarding this persistent free product, a second event (Event 2) was performed on monitoring wells MW-20 and MW-32 on the following day. Free product thicknesses of 0.65 and 0.42 feet were measured in monitoring well MW-32 following Events 2 and 5, respectively. Trace thicknesses of free product were measured in monitoring well MW-2 following Events 3 and 4.

The radius of influence as measured at monitoring wells MW-12R, MW-13R, MW-20, MW-24, and MW-26 was intermittent and inconsistent among the events. A vacuum was produced in deep well PW-31 during the first 2.5 hours of Event 1 only. A slight vacuum was produced for a short duration at MW-26, located 210 feet from the extraction point, during Events 1 and 5 but not during Event 2. During Event 2, a slight vacuum was produced in MW-13R (located 90 ft from the extraction point) but was not detected in any of the other gauged wells.

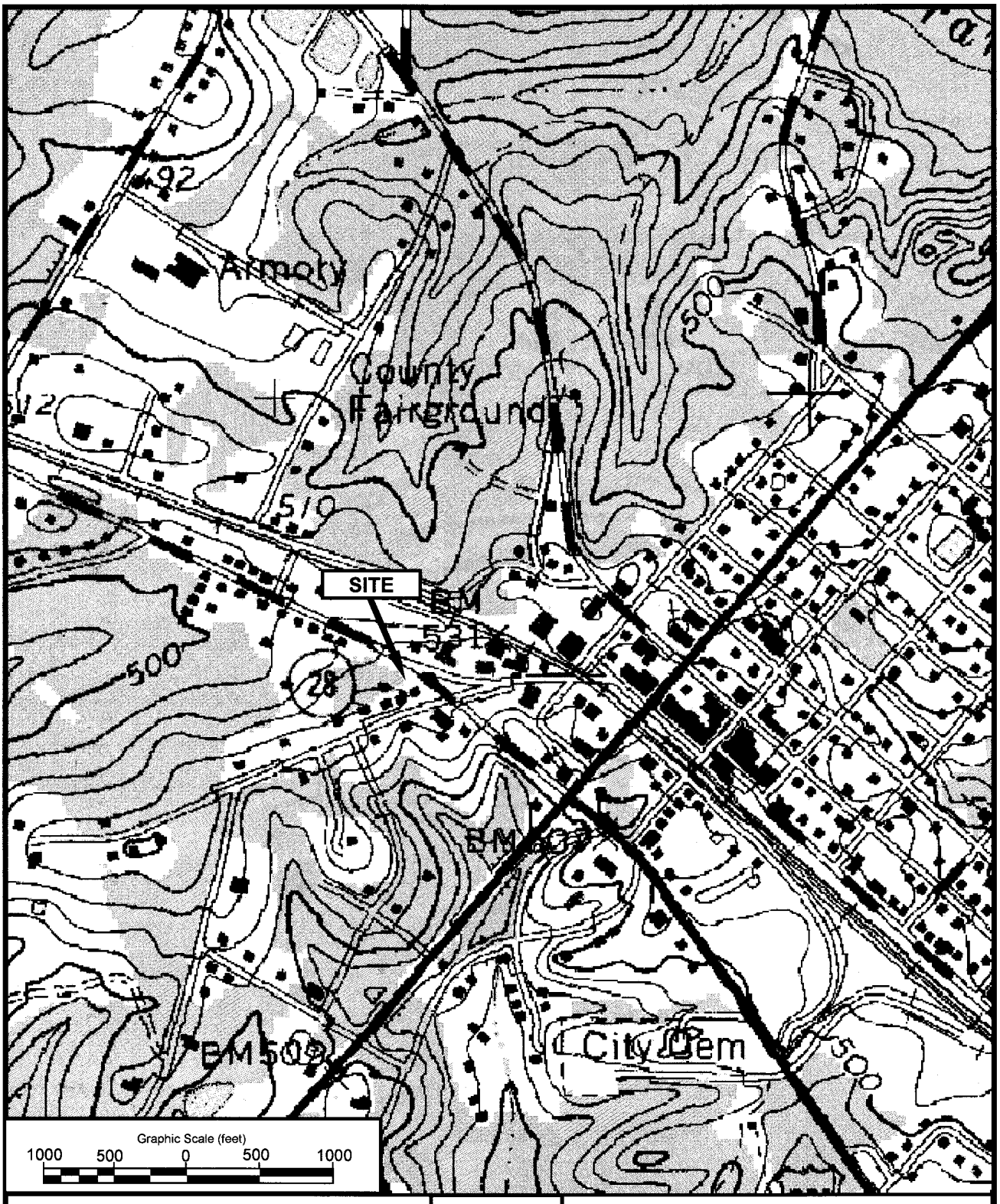
Differential pressures (vacuum) measurements recorded with a magnehelic gauge at monitoring wells MW-7B, MW-8R, MW-9B, MW-13R, and MW-14B indicated that the zone of influence during extraction on wells MW-1 and MW-2 also was inconsistent. During Event 3, vacuums were not produced in any of the gauged wells, while vacuums were registered at wells MW-9B (74 ft from extraction point) and MW-13R (108 ft from extraction point) during Event 4

The AFVR field data is included in Appendix A. The disposal manifests for the extracted ground water are included in Appendix B.

3.0 CONCLUSIONS AND RECOMMENDATIONS

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the five events performed as part of this scope of work, approximately 1,762 pounds of VOCs have been removed from the subsurface. Terracon recommends additional AFVR events to remove petroleum hydrocarbons from the area around the UST system and from the vicinity of MW-32.

FIGURES



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

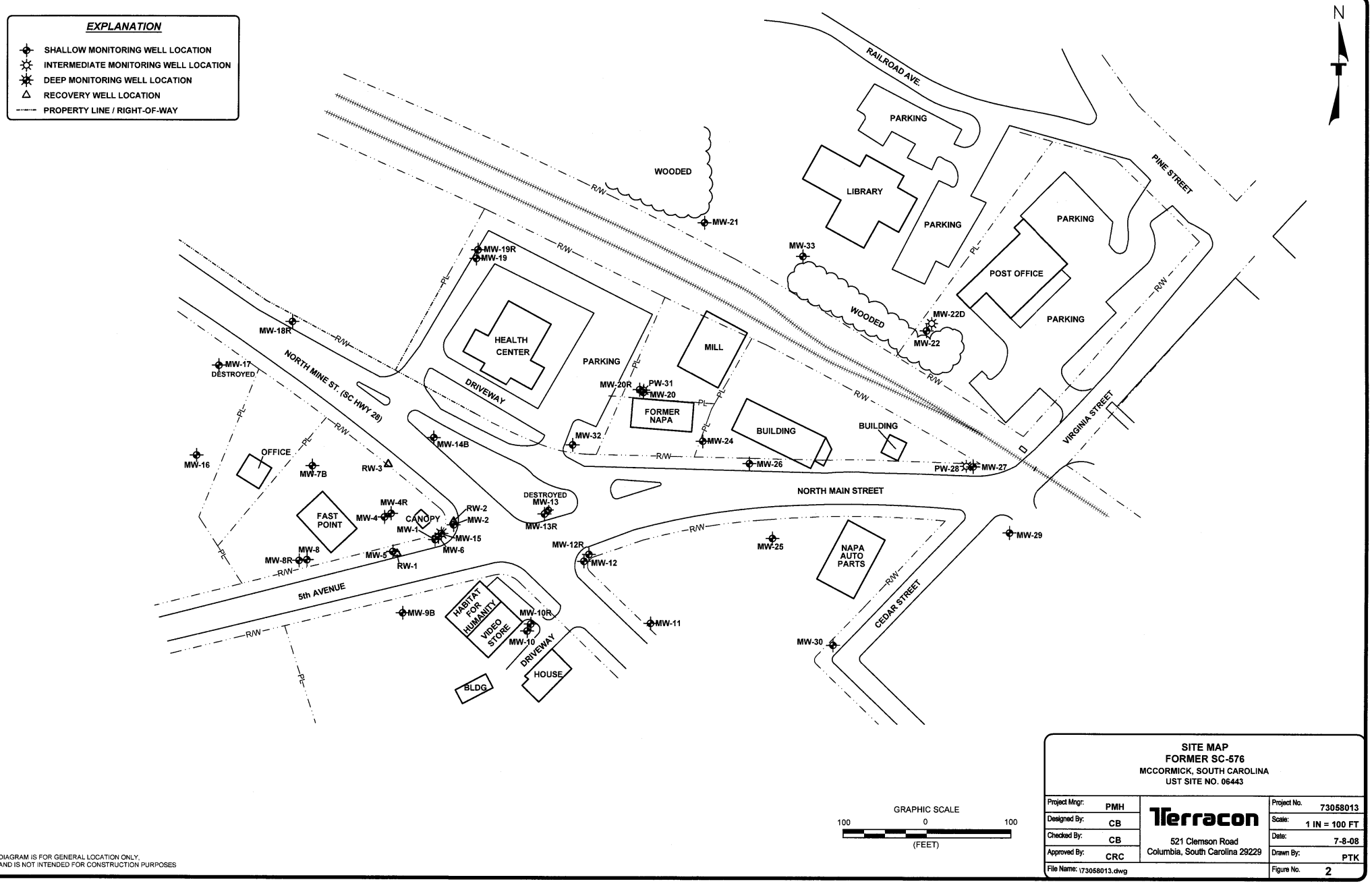
DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1



GRAPHIC SCALE

100 0 100

(FEET)

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73058013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road Columbia, South Carolina 29229	Date: 7-8-08
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 2

APPENDIX A

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/13/08	Event #: 1
System Data (prior to offgas treatment)			Weather: Rain	Temp: 70 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20 MW-32	6:00	6:30	30	100,000	100,000	100,000	1,298	1,502	1,400	30.52	36.01	18.01	18.01
	6:30	7:00	30	100,000	100,000	100,000	1,502	1,420	1,461	31.85	37.58	18.79	36.80
	7:00	7:30	30	100,000	100,000	100,000	1,420	1,409	1,415	30.84	36.39	18.19	54.99
	7:30	8:00	30	100,000	100,000	100,000	1,409	1,381	1,395	30.41	35.88	17.94	72.93
	8:00	8:30	30	100,000	100,000	100,000	1,381	1,444	1,413	30.79	36.34	18.17	91.10
	8:30	9:00	30	100,000	100,000	100,000	1,444	1,559	1,502	32.73	38.62	19.31	110.41
	9:00	9:30	30	100,000	100,000	100,000	1,559	1,617	1,588	34.62	40.85	20.42	130.84
	9:30	10:00	30	100,000	100,000	100,000	1,617	1,637	1,627	35.47	41.85	20.93	151.77
	10:00	10:30	30	100,000	100,000	100,000	1,637	1,652	1,645	35.85	42.30	21.15	172.92
	10:30	11:00	30	100,000	100,000	100,000	1,652	1,564	1,608	35.05	41.36	20.68	193.60
	11:00	11:30	30	100,000	100,000	100,000	1,564	1,576	1,570	34.23	40.39	20.19	213.79
	11:30	12:00	30	100,000	100,000	100,000	1,576	1,532	1,554	33.88	39.98	19.99	233.78
	12:00	12:30	30	100,000	100,000	100,000	1,532	1,504	1,518	33.09	39.05	19.52	253.30
	12:30	13:00	30	100,000	100,000	100,000	1,504	1,474	1,489	32.46	38.30	19.15	272.46
	13:00	13:30	30	100,000	100,000	100,000	1,474	1,564	1,519	33.11	39.07	19.54	291.99
	13:30	14:00	30	100,000	100,000	100,000	1,564	1,589	1,577	34.37	40.55	20.28	312.27

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**300**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**52.9**	**gallons**
Total Hydrocarbon Recovery:	**52.9**	**gallons**

TOTAL lbs of VOC emissions = 312.27

Free Product Thickness - MW-20
Prior to AFVR - 0.42 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-32
Prior to AFVR - 1.24 Feet
After AFVR - 1.12 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/13/08	Event #: 1
Offgas Data (measured at discharge of carbon drums)			**Weather:** Rain	**Temp:** 70 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20 MW-32	6:00	6:30	30	18,000	10,000	14,000	329	458	394	8.58	1.42	0.71	0.71
	6:30	7:00	30	10,000	13,000	11,500	458	823	641	13.96	1.89	0.95	1.66
	7:00	7:30	30	13,000	11,000	12,000	823	1,107	965	21.04	2.98	1.49	3.15
	7:30	8:00	30	11,000	14,000	12,500	1,107	901	1,004	21.89	3.23	1.61	4.76
	8:00	8:30	30	14,000	14,000	14,000	901	1,172	1,037	22.60	3.73	1.87	6.63
	8:30	9:00	30	14,000	14,000	14,000	1,172	966	1,069	23.30	3.85	1.92	8.55
	9:00	9:30	30	14,000	10,000	12,000	966	1,032	999	21.78	3.08	1.54	10.09
	9:30	10:00	30	10,000	12,000	11,000	1,032	819	926	20.18	2.62	1.31	11.40
	10:00	10:30	30	12,000	12,000	12,000	819	955	887	19.34	2.74	1.37	12.77
	10:30	11:00	30	12,000	12,000	12,000	955	1,188	1,072	23.36	3.31	1.65	14.43
	11:00	11:30	30	12,000	12,000	12,000	1,188	1,161	1,175	25.60	3.63	1.81	16.24
	11:30	12:00	30	12,000	12,000	12,000	1,161	1,108	1,135	24.73	3.50	1.75	17.99
	12:00	12:30	30	12,000	12,000	12,000	1,108	1,062	1,085	23.65	3.35	1.67	19.66
	12:30	13:00	30	12,000	10,000	11,000	1,062	1,164	1,113	24.26	3.15	1.57	21.24
	13:00	13:30	30	10,000	10,000	10,000	1,164	1,187	1,176	25.63	3.02	1.51	22.75
	13:30	14:00	30	10,000	10,000	10,000	1,187	1,202	1,195	26.04	3.07	1.54	24.29

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**300**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**4.1**	**gallons**
Total Hydrocarbon Recovery:	**4.1**	**gallons**

TOTAL lbs of VOC emissions = 24.29

Free Product Thickness - MW-20
Prior to AFVR - 0.42 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-32
Prior to AFVR - 1.24 Feet
After AFVR - 1.12 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 1 Date: 8-13-08

Well No. / Distance to Nearest Pumped Well	MW-13R 90 ft.	MW-12R 135 ft.	MW-24 155 ft.	MW-26 210 ft.	PW-31 5 ft.
Time	**Vacuum (inches of water)**				
6:00	0	0	0	0	2.0
6:30	0	0	0	0	2.0
7:00	0	0	0	0	2.0
7:30	0	0	0	0	2.0
8:00	0	0	0	0.1	0.85
8:30	0	0	0	0.05	0
9:00	0	0	0	0	0
9:30	0	0	0	0	0
10:00	0	0	0	0	0
10:30	0	0	0	0	0
11:00	0	0	0	0	0
11:30	0	0	0	0	0
12:00	0	0	0	0	0
12:30	0	0	0	0	0
13:00	0	0	0	0	0
13:30	0	0	0	0	0
14:00	0	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/14/08	Event #: 2

System Data (prior to offgas treatment) **Weather:** Fog **Temp:** 67 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20 MW-32	6:00	6:30	30	100,000	100,000	100,000	49	68	59	1.28	1.50	0.75	0.75
	6:30	7:00	30	100,000	100,000	100,000	68	90	79	1.72	2.03	1.02	1.77
	7:00	7:30	30	100,000	100,000	100,000	90	133	112	2.43	2.87	1.43	3.20
MW-32	7:30	8:00	30	100,000	100,000	100,000	133	802	468	10.19	12.03	6.01	9.22
	8:00	8:30	30	100,000	100,000	100,000	802	1,089	946	20.61	24.32	12.16	21.38
	8:30	9:00	30	100,000	100,000	100,000	1,089	1,103	1,096	23.89	28.19	14.10	35.47
	9:00	9:30	30	100,000	100,000	100,000	1,103	1,128	1,116	24.32	28.70	14.35	49.82
	9:30	10:00	30	100,000	100,000	100,000	1,128	1,233	1,181	25.73	30.37	15.18	65.00
	10:00	10:30	30	100,000	38,000	69,000	1,233	1,280	1,257	27.39	22.30	11.15	76.16
	10:30	11:00	30	38,000	38,000	38,000	1,280	1,357	1,319	28.74	12.89	6.44	82.60
	11:00	11:30	30	38,000	38,000	38,000	1,357	1,583	1,470	32.05	14.37	7.18	89.78
	11:30	12:00	30	38,000	28,000	33,000	1,583	1,532	1,558	33.95	13.22	6.61	96.40
	12:00	12:30	30	28,000	28,000	28,000	1,532	1,499	1,516	33.04	10.92	5.46	101.85
	12:30	13:00	30	28,000	17,000	22,500	1,499	1,582	1,541	33.58	8.92	4.46	106.31
	13:00	13:30	30	17,000	12,000	14,500	1,582	1,609	1,596	34.78	5.95	2.98	109.29
	13:30	14:00	30	12,000	680	6,340	1,609	1,721	1,665	36.30	2.72	1.36	110.64

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **30** **gallons**
Total Liquid-phase Hydrocarbon..... **0.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **18.8** **gallons**
Total Hydrocarbon Recovery:..... **18.8** **gallons**

TOTAL lbs of VOC emissions = 110.64

Free Product Thickness - MW-20
Prior to AFVR - 0.16 Feet
After AFVR - TRACE

Free Product Thickness - MW-32
Prior to AFVR - 0.98 Feet
After AFVR - 0.65 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/14/08	Event #: 2

Offgas Data (measured at discharge of carbon drums) — **Weather:** Partly Cloudy — **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20	6:00	6:30	30	19,000	19,000	19,000	27	40	34	0.73	0.16	0.08	0.08
MW-32	6:30	7:00	30	19,000	18,000	18,500	40	63	52	1.12	0.25	0.12	0.20
	7:00	7:30	30	18,000	18,000	18,000	63	83	73	1.59	0.34	0.17	0.37
MW-32	7:30	8:00	30	18,000	10,000	14,000	83	1,003	543	11.84	1.96	0.98	1.35
	8:00	8:30	30	10,000	13,000	11,500	1,003	544	774	16.86	2.29	1.14	2.50
	8:30	9:00	30	13,000	14,000	13,500	544	749	647	14.09	2.25	1.12	3.62
	9:00	9:30	30	14,000	16,000	15,000	749	590	670	14.60	2.58	1.29	4.91
	9:30	10:00	30	16,000	15,000	15,500	590	737	664	14.46	2.65	1.32	6.23
	10:00	10:30	30	15,000	14,000	14,500	737	545	641	13.97	2.39	1.20	7.43
	10:30	11:00	30	14,000	10,000	12,000	545	503	524	11.42	1.62	0.81	8.24
	11:00	11:30	30	10,000	10,000	10,000	503	728	616	13.42	1.58	0.79	9.03
	11:30	12:00	30	10,000	7,000	8,500	728	878	803	17.51	1.76	0.88	9.91
	12:00	12:30	30	7,000	4,000	5,500	878	826	852	18.57	1.21	0.60	10.51
	12:30	13:00	30	4,000	800	2,400	826	1,002	914	19.93	0.56	0.28	10.79
	13:00	13:30	30	800	0	400	1,002	1,127	1,065	23.21	0.11	0.05	10.85
	13:30	14:00	30	0	0	0	1,127	1,089	1,108	24.15	0.00	0.00	10.85

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**30**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**1.8**	**gallons**
Total Hydrocarbon Recovery:	**1.8**	**gallons**

TOTAL lbs of VOC emissions = 10.85

Free Product Thickness - MW-20
Prior to AFVR - 0.16 Feet
After AFVR - TRACE

Free Product Thickness - MW-32
Prior to AFVR - 0.98 Feet
After AFVR - 0.65 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 2 Date: 8-14-08

Well No.	MW-24	MW-26	MW-13R	MW-14B	MW-12R	MW-20
Distance to Nearest Pumped Well	155 ft.	210 ft.	90 ft.	165 ft.	135 ft.	105 ft.
Time	Vacuum (inches of water)					
6:30	0	0	0	0	0	NM
7:00	0	0	0	0	0	NM
7:30	0	0	0	0	0	NM
8:00	0	0	0	0	NM	0
8:30	0	0	0	0	NM	0
9:00	0	0	0	0	NM	0
9:30	0	0	0	0	NM	0
10:00	0	0	0	0	NM	0
10:30	0	0	0.05	0	NM	0
11:00	0	0	0.05	0	NM	0
11:30	0	0	0.05	0	NM	0
12:00	0	0	0	0	NM	0
12:30	0	0	0	0	NM	0
13:00	0	0	0	0	NM	0
13:30	0	0	0	0	NM	0
14:00	0	0	0	0	NM	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/15/08	Event #: 3

System Data (prior to offgas treatment) — **Weather:** Partly Cloudy — **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	6:00	6:30	30	100,000	100,000	100,000	2,192	2,204	2,198	47.92	56.54	28.27	28.27
	6:30	7:00	30	100,000	100,000	100,000	2,204	2,318	2,261	49.29	58.16	29.08	57.35
	7:00	7:30	30	100,000	100,000	100,000	2,318	2,492	2,405	52.43	61.87	30.93	88.28
	7:30	8:00	30	100,000	100,000	100,000	2,492	2,534	2,513	54.78	64.64	32.32	120.61
	8:00	8:30	30	100,000	100,000	100,000	2,534	1,590	2,062	44.95	53.04	26.52	147.13
	8:30	9:00	30	100,000	100,000	100,000	1,590	1,593	1,592	34.69	40.94	20.47	167.60
	9:00	9:30	30	100,000	100,000	100,000	1,593	2,945	2,269	49.46	58.37	29.18	196.78
	9:30	10:00	30	100,000	100,000	100,000	2,945	3,788	3,367	73.39	86.60	43.30	240.08
	10:00	10:30	30	100,000	100,000	100,000	3,788	4,061	3,925	85.55	100.95	50.48	290.56
	10:30	11:00	30	100,000	100,000	100,000	4,061	4,207	4,134	90.12	106.34	53.17	343.73
	11:00	11:30	30	100,000	100,000	100,000	4,207	4,291	4,249	92.63	109.30	54.65	398.38
	11:30	12:00	30	100,000	100,000	100,000	4,291	4,069	4,180	91.12	107.53	53.76	452.14
	12:00	12:30	30	100,000	100,000	100,000	4,069	3,773	3,921	85.48	100.86	50.43	502.58
	12:30	13:00	30	100,000	100,000	100,000	3,773	3,702	3,738	81.48	96.14	48.07	550.65
	13:00	13:30	30	100,000	100,000	100,000	3,702	3,681	3,692	80.47	94.96	47.48	598.13
	13:30	14:00	30	100,000	100,000	100,000	3,681	3,694	3,688	80.39	94.86	47.43	645.56

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **35** **gallons**
Total Liquid-phase Hydrocarbon..... **0.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **109.4** **gallons**
Total Hydrocarbon Recovery:..... **109.4** **gallons**

TOTAL lbs of VOC emissions = 645.56

Free Product Thickness - MW-1
Prior to AFVR - DRY
After AFVR - DRY

Free Product Thickness - MW-2
Prior to AFVR - 0.05 Feet
After AFVR - 0.03 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 8/15/08	Event #: 3

Offgas Data (measured at discharge of carbon drums) **Weather:** Fog **Temp:** 66 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	6:00	6:30	30	1,000	1,000	1,000	311	270	291	6.33	0.07	0.04	0.04
	6:30	7:00	30	1,000	1,000	1,000	270	391	331	7.20	0.09	0.04	0.08
	7:00	7:30	30	1,000	2,000	1,500	391	412	402	8.75	0.15	0.08	0.16
	7:30	8:00	30	2,000	2,000	2,000	412	458	435	9.48	0.22	0.11	0.27
	8:00	8:30	30	2,000	12,000	7,000	458	592	525	11.45	0.95	0.47	0.74
	8:30	9:00	30	12,000	100,000	56,000	592	488	540	11.77	7.78	3.89	4.63
	9:00	9:30	30	100,000	100,000	100,000	488	234	361	7.87	9.29	4.64	9.27
	9:30	10:00	30	100,000	100,000	100,000	234	713	474	10.32	12.18	6.09	15.36
	10:00	10:30	30	100,000	100,000	100,000	713	592	653	14.22	16.78	8.39	23.76
	10:30	11:00	30	100,000	100,000	100,000	592	687	640	13.94	16.45	8.23	31.98
	11:00	11:30	30	100,000	100,000	100,000	687	786	737	16.06	18.95	9.47	41.46
	11:30	12:00	30	100,000	100,000	100,000	786	762	774	16.87	19.91	9.96	51.41
	12:00	12:30	30	100,000	100,000	100,000	762	699	731	15.92	18.79	9.40	60.81
	12:30	13:00	30	100,000	100,000	100,000	699	722	711	15.49	18.28	9.14	69.94
	13:00	13:30	30	100,000	100,000	100,000	722	712	717	15.63	18.44	9.22	79.17
	13:30	14:00	30	100,000	100,000	100,000	712	623	668	14.55	17.17	8.59	87.75

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**35**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**14.9**	**gallons**
Total Hydrocarbon Recovery:	**14.9**	**gallons**

TOTAL lbs of VOC emissions = 87.75

Free Product Thickness - MW-1
Prior to AFVR - DRY
After AFVR - DRY

Free Product Thickness - MW-2
Prior to AFVR - 0.05 Feet
After AFVR - 0.03 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 3 Date: 8-15-08

Well No.	MW-7B	MW-8R	MW-9B	MW-13R	MW-14B
Distance to Nearest Pumped Well	109 ft.	112 ft.	74 ft.	108 ft.	103 ft.
Time	Vacuum (inches of water)				
6:30	0	0	0	0	0
7:00	0	0	0	0	0
7:30	0	0	0	0	0
8:00	0	0	0	0	0
8:30	0	0	0	0	0
9:00	0	0	0	0	0
9:30	0	0	0	0	0
10:00	0	0	0	0	0
10:30	0	0	0	0	0
11:00	0	0	0	0	0
11:30	0	0	0	0	0
12:00	0	0	0	0	0
12:30	0	0	0	0	0
13:00	0	0	0	0	0
13:30	0	0	0	0	0
14:00	0	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 9/17/08	Event #: 4
System Data			Weather: Overcast	Temp: 62 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	6:00	6:30	30	100,000	100,000	100,000	1,018	1,062	1,040	22.67	26.75	13.38	13.38
	6:30	7:00	30	100,000	100,000	100,000	1,062	1,089	1,076	23.45	27.67	13.83	27.21
	7:00	7:30	30	100,000	100,000	100,000	1,089	1,214	1,152	25.10	29.62	14.81	42.02
	7:30	8:00	30	100,000	100,000	100,000	1,214	966	1,090	23.76	28.04	14.02	56.04
	8:00	8:30	30	100,000	100,000	100,000	966	798	882	19.23	22.69	11.34	67.38
	8:30	9:00	30	100,000	100,000	100,000	798	825	812	17.69	20.88	10.44	77.82
	9:00	9:30	30	100,000	100,000	100,000	825	1,001	913	19.90	23.49	11.74	89.56
	9:30	10:00	30	100,000	100,000	100,000	1,001	979	990	21.58	25.47	12.73	102.30
	10:00	10:30	30	100,000	100,000	100,000	979	963	971	21.17	24.98	12.49	114.79
	10:30	11:00	30	100,000	100,000	100,000	963	2,022	1,493	32.54	38.39	19.20	133.98
	11:00	11:30	30	100,000	100,000	100,000	2,022	1,982	2,002	43.64	51.50	25.75	159.73
	11:30	12:00	30	100,000	100,000	100,000	1,982	1,937	1,960	42.72	50.41	25.20	184.94
	12:00	12:30	30	100,000	100,000	100,000	1,937	2,058	1,998	43.55	51.38	25.69	210.63
	12:30	13:00	30	100,000	100,000	100,000	2,058	2,077	2,068	45.07	53.18	26.59	237.22
	13:00	13:30	30	100,000	100,000	100,000	2,077	2,096	2,087	45.49	53.67	26.84	264.06
	13:30	14:00	30	100,000	100,000	100,000	2,096	2,081	2,089	45.53	53.72	26.86	290.92

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**30**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**49.3**	**gallons**
Total Hydrocarbon Recovery:	**49.3**	**gallons**

TOTAL lbs of VOC emissions = 290.92

Free Product Thickness - MW-1
Prior to AFVR - DRY
After AFVR - DRY

Free Product Thickness - MW-2
Prior to AFVR - DRY
After AFVR - 0.03 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 4 Date: 9-17-08

Well No.	MW-7B	MW-8R	MW-9B	MW-13R	MW-14B
Distance to Nearest Pumped Well	109 ft.	112 ft.	74 ft.	108 ft.	103 ft.
Time					
6:30	0	0	0	0	0
7:00	0	0	0	0.05	0
7:30	0	0	0.05	0.10	0
8:00	0	0	0.05	0.20	0
8:30	0	0	0.05	0.25	0
9:00	0	0	0.05	0.40	0
9:30	0	0	0	1.25	0
10:00	0	0	0	1.35	0
10:30	0	0	0	1.40	0
11:00	0	0	0	1.50	0
11:30	0	0	0.1	1.50	0
12:00	0	0	0.15	1.80	0
12:30	0	0	0.15	1.85	0
13:00	0	0	0.15	1.85	0
13:30	0	0	0.15	1.90	0
14:00	0	0	0.15	1.90	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 9/18/08	Event #: 5
System Data (prior to offgas treatment)			Weather: Clear	Temp: 62 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-32	6:00	6:30	30	100,000	100,000	100,000	666	928	797	17.37	20.50	10.25	10.25
	6:30	7:00	30	100,000	100,000	100,000	928	1,364	1,146	24.98	29.48	14.74	24.99
	7:00	7:30	30	100,000	100,000	100,000	1,364	1,505	1,435	31.27	36.90	18.45	43.44
	7:30	8:00	30	100,000	100,000	100,000	1,505	616	1,061	23.12	27.28	13.64	57.08
	8:00	8:30	30	100,000	100,000	100,000	616	649	633	13.79	16.27	8.14	65.22
	8:30	9:00	30	100,000	100,000	100,000	649	652	651	14.18	16.73	8.37	73.58
	9:00	9:30	30	100,000	100,000	100,000	652	646	649	14.15	16.69	8.35	81.93
	9:30	10:00	30	100,000	100,000	100,000	646	564	605	13.19	15.56	7.78	89.71
	10:00	10:30	30	100,000	100,000	100,000	564	495	530	11.54	13.62	6.81	96.52
	10:30	11:00	30	100,000	100,000	100,000	495	3,913	2,204	48.05	56.70	28.35	124.87
	11:00	11:30	30	100,000	100,000	100,000	3,913	3,206	3,560	77.60	91.56	45.78	170.65
	11:30	12:00	30	100,000	100,000	100,000	3,206	2,962	3,084	67.23	79.33	39.67	210.32
	12:00	12:30	30	100,000	100,000	100,000	2,962	2,799	2,881	62.79	74.10	37.05	247.37
	12:30	13:00	30	100,000	100,000	100,000	2,799	4,211	3,505	76.41	90.16	45.08	292.45
	13:00	13:30	30	100,000	100,000	100,000	4,211	4,237	4,224	92.08	108.66	54.33	346.78
	13:30	14:00	30	100,000	100,000	100,000	4,237	4,386	4,312	93.99	110.91	55.45	402.23

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **330** **gallons**
Total Liquid-phase Hydrocarbon..... **0.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **68.2** **gallons**
Total Hydrocarbon Recovery:..... **68.2** **gallons**

TOTAL lbs of VOC emissions = 402.23

Free Product Thickness - MW-32
Prior to AFVR - 1.10 ft
After AFVR - 0.42 ft

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 9/18/08	Event #: 5

Offgas Data (measured at discharge of carbon drums) **Weather:** Partly Cloudy **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-32	6:00	6:30	30	1,000	4,000	2,500	292	816	554	12.08	0.36	0.18	0.18
	6:30	7:00	30	10,000	20,000	15,000	816	1,107	962	20.96	3.71	1.86	2.03
	7:00	7:30	30	20,000	21,000	20,500	1,107	1,844	1,476	32.17	7.78	3.89	5.92
	7:30	8:00	30	21,000	42,000	31,500	1,844	2,133	1,989	43.35	16.11	8.06	13.98
	8:00	8:30	30	42,000	52,000	47,000	2,133	833	1,483	32.33	17.93	8.96	22.95
	8:30	9:00	30	52,000	100,000	76,000	833	629	731	15.94	14.29	7.15	30.09
	9:00	9:30	30	100,000	100,000	100,000	629	568	599	13.05	15.40	7.70	37.79
	9:30	10:00	30	100,000	100,000	100,000	568	462	515	11.23	13.25	6.62	44.41
	10:00	10:30	30	100,000	100,000	100,000	462	391	427	9.30	10.97	5.49	49.90
	10:30	11:00	30	100,000	100,000	100,000	391	562	477	10.39	12.26	6.13	56.03
	11:00	11:30	30	100,000	100,000	100,000	562	606	584	12.73	15.02	7.51	63.54
	11:30	12:00	30	100,000	100,000	100,000	606	680	643	14.02	16.54	8.27	71.81
	12:00	12:30	30	100,000	100,000	100,000	680	547	614	13.37	15.78	7.89	79.70
	12:30	13:00	30	100,000	100,000	100,000	547	607	577	12.58	14.84	7.42	87.12
	13:00	13:30	30	100,000	100,000	100,000	607	649	628	13.69	16.15	8.08	95.20
	13:30	14:00	30	100,000	100,000	100,000	649	714	682	14.86	17.53	8.77	103.96

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**330**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**17.6**	**gallons**
Total Hydrocarbon Recovery:	**17.6**	**gallons**

TOTAL lbs of VOC emissions = 103.96

Free Product Thickness - MW-32
Prior to AFVR - 1.10 ft
After AFVR - 0.42 ft

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 5 Date: 9-18-08

Well No.	MW-24	MW-26	MW-13R	MW-12R	MW-20
Distance to Nearest Pumped Well	155 ft.	210 ft.	90 ft.	135 ft.	105 ft.
Time	Vacuum (inches of water)				
6:30	0	0	0	0	0
7:00	0	0	0	0	0
7:30	0	0	0	0	0
8:00	0	0	0	0	0
8:30	0	0	0	0	0
9:00	0	0	0	0	0
9:30	0	0.05	0	0	0
10:00	0	0.05	0	0	0
10:30	0	0.10	0	0	0
11:00	0	0.05	0	0	0
11:30	0	0	0	0	0
12:00	0	0	0	0	0
12:30	0	0	0	0	0
13:00	0	0	0	0	0
13:30	0	0	0	0	0
14:00	0	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

APPENDIX B

Terracon Job No.
7305801 3

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
		800-535-5053	001890

GENERATOR

5. Generator's Name and Mailing Address: Crown Central LLC, P.O. Box 1168, Baltimore Maryland 21203
Generator's Phone:
Generator's Site Address (if different than mailing address): One Stop, 201 N. Mine St., McCormick, S.C.

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC. — 877-682-0234 — U.S. EPA ID Number: SCR000766048

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address: Diversified Recycling, 132 Gardner Terrace Rd., W. Columbia, S.C. 29172 — U.S. EPA ID Number
Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON RCRA NON Regulated Waters	1	TT	65	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Melissa Roberts, Signatory agent for Crown Central — Signature: Melissa Roberts — Month 9 Day 5 Year 08

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Richard D. Farr — Signature: Richard D. Farr — Month 09 Day 05 Year 08

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Donald LaBurnette — Signature: [signature] — Month 9 Day 29 Year 08

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CESQG	2. Page 1 of	3. Emergency Response Phone 800-535-5053	4. Waste Tracking Number 001925

5. Generator's Name and Mailing Address SC 576
201 N Main St. McCormick
Generator's Phone: 803-711-9000 SC

Generator's Site Address (if different than mailing address)
TERRACON
Job# 7305-8013

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC. — 877-682-0234 — U.S. EPA ID Number: SCR000766048

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address DIVERSIFIED Recycling
132 Gapdrive TERRACON West Columbia SC 29172
Facility's Phone: 803 793-5271
U.S. EPA ID Number: SCR000768127

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	NON RCRA NON Regulated Liqui	01	T1	660	G
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: As Signatory Agent for Regan W. Davis Chem Petroleum — Signature: As Signatory Agent for Chem Petro — Month 12 Day 3 Year 08

TRANSPORTER

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: James Smith — Signature — Month 12 Day 3 Year 08

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month Day Year

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

DEC 12 2008

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

Re: Groundwater Sampling Directive
One Stop, 201 N Mine St, McCormick, SC
UST Permit #06443; CA#34689
Release reported 13 December 1989
AFVR report received 20 October 2008
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site. The Program has reviewed the referenced report and determined the next necessary scope of work to be a comprehensive groundwater-sampling event to obtain current data.

Cost Agreement #34689 has been approved in the amount shown on the enclosed cost agreement for the sampling. Samples should be collected from all monitoring wells associated with the release and analyzed for BTEX, naphthalene, MtBE, by EPA method 8260B and EDB by EPA method 8011(note that the required detection limit for EDB is 0.02 µg/L). If the well screen does not bracket the water table, then the wells should be purged prior to collecting a sample. Please have your contractor submit the sampling results to the Program in a monitoring report containing the following:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Program, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well location.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

Terracon Consultants, Inc, can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

UST DOCKET

14 tech

A Report of Findings and invoice are due within 60 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note, if unnecessary dilutions are completed resulting in elevated reporting limits in excess of risk-based screening levels, the data cannot be used. In these cases, the UST Program may deny payment for any non-detect analysis where the reporting limit exceeds the RBSL. The UST Program encourages the use of 'J' values as necessary so the appropriate action can be determined for a release.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Program is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be preapproved by the Program for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The UST Program grants preapproval for transportation of virgin petroleum-contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on-site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or groundwater.

On all correspondence concerning this site, please reference **UST Permit #06443 and CA #34689.** If there are any questions concerning this project, please contact me by email at dolphibm@dhec.sc.gov or by phone at 803 896 6649.

Sincerely,

Brian Dolphin, Geologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Technical File (w/enc)
Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229 (w/ enc)

Approved Cost Agreement 34689

Facility: 06443 ONE STOP
DOLPHIBM
PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		B	PERSONNEL	3.0000	290.00	870.00
10 SAMPLE COLLECTION						
		A	GROUND WATER	1.0000	55.00	55.00
		C	WATER SUPPLY	2.0000	25.00	50.00
		D	GROUNDWATER NO-PURGE	26.0000	35.00	910.00
11 ANALYSES						
	GW GROUNDWATER	A	BTEX+NAPTH+MTBE	29.0000	100.00	2,900.00
		D	GW PAH'S	29.0000	120.00	3,480.00
		F	EDB	29.0000	55.00	1,595.00
17 DISPOSAL						
		A1	WASTEWATER - PURGING/SAMPLING	2.0000	90.00	180.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PCT	PERCENT	0.1500	10,040.00	1,506.00
					Total Amount	11,546.00

GROUND WATER ASSESSMENT REPORT
ONE STOP (FORMER SC-576)

201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST Permit # 06443

Prepared for:

Crown Central LLC
P.O. Box 1168
Baltimore, Maryland 21203

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

February 5, 2009
Terracon Project No. 73058013

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

February 5, 2009

Mr. Brian Dolphin
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: **Ground Water Assessment Report**
One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina
UST Permit No. 06443; CA #34689
Terracon Project No. 73058013

Dear Mr. Dolphin:

On behalf of Crown Central LLC, **Terracon Consultants, Inc. (Terracon)** is pleased to submit this Ground Water Assessment Report for the One Stop (former SC-576) site located at 201 North Mine Street, McCormick, South Carolina. If you have any questions regarding the contents of this report, or if there is a need for further information, please contact us.

Respectfully submitted,

Terracon Consultants, Inc.

Melissa Roberts, P.G.
Senior Staff Geologist
SC Registration No. 2485

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

Enclosures

cc: Jim Janson / Crown Central LLC

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GROUND WATER ASSESSMENT REPORT
One Stop (Former SC-576)
201 North Mine Street
McCormick, South Carolina
Terracon Project No. 73058013

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1 Site Location Map
2 Site Map
3 Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
4 Potentiometric Surface Map of the Intermediate Portion of the Shallow Aquifer
5 Benzene / MTBE Concentration Map

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1 Ground Water Elevation Data
2 Ground Water Analytical Data - Petroleum Compounds
3 Ground Water Analytical Data - Polycyclic Aromatic Hydrocarbon (PAH) Compounds

APPENDICES

A Ground Water Sampling Logs
B Chemical Analytical Data
C Disposal Manifest

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed the ground water assessment at the One Stop (former SC-576) site located at 201 North Mine Street, McCormick, South Carolina. The purpose of the assessment was to evaluate the current ground water quality conditions from a release of petroleum hydrocarbons previously reported at the site. The work was performed in accordance with the SCDHEC cost agreement # 34689 dated December 12, 2008 and the Risk Based Corrective Action (RBCA) guidance document prepared by SCDHEC, dated May 15, 2001. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Facility Information

UST Permit #: **06443**

Facility Name: One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina

UST Owner: One Stop
Sahjanand Inc.
813 E. Gold Street
McCormick, SC

Property Owner: Mahesh Patel
2811 Reidville Road
Spartanburg, SC 29301
(864) 205-8777 mobile

1.2 Site Description

The site currently operates as the Fast Point convenience store and gas station. The site consists of a retail convenience store and an underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.3 Facility History

Previous assessments have identified petroleum hydrocarbons in free phase and dissolved phase at this site. Free product previously has been detected in nine wells located within 200 feet of the source area. The dissolved plume has impacted both the water table portion (19-35 feet) and the intermediate portion (50-57 feet) of the shallow aquifer. Hydrocarbon impact in the upper portion of the shallow aquifer downgradient extended approximately 700 feet to the northeast from the UST system. Deep monitoring well MW-15, located within the source area and screened from 125 to 130 feet depth, has also been affected by dissolved petroleum compounds.

Aggressive Fluid Vapor Recovery (AFVR) has been used to remove free phase and dissolved petroleum contaminants at this site. Two AVFR events performed at this site in December 2007 removed approximately 2,563 pounds of volatile organic compounds (VOCs) from the subsurface. Terracon performed seven AFVR events at this site in 2008. A combined total of approximately 2,845 pounds of volatile organic compounds (VOCs) were removed from the subsurface.

Based on the results of the AFVR events to date, the SCDHEC requested a comprehensive ground water sampling event as the next scope of work. This report includes a summary of the field methods utilized along with the results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

2.0 GROUND WATER SAMPLING AND ANALYSES

Water levels were measured in existing site monitoring wells using an electric water level indicator on January 6, 2009. The water level data was converted to elevations relative to top of casing (TOC) elevations. A summary of the water level data is presented in Table 1. Potentiometric surface maps of the upper and intermediate/deep portions of the shallow aquifer are included as Figures 4 and 5, respectively.

Twelve wells (MW-1, MW-2, MW-4, MW-5, MW-6, MW-7B, MW-8, MW-9B, MW-10, MW-11, MW-12, MW-18R) were dry or had insufficient water to sample. Five wells (MW-13R, MW-14B, MW-20, MW-20R, and MW-32) had measurable thicknesses of free product and were not sampled. Seven monitoring wells (MW-6, MW-15, MW-22D, MW-24, PW-28, PW-31, and MW-33) were purged prior to sampling because the water table was not bracketed by

the screened interval of the well. Grab samples were collected from the remaining 13 wells where the screened intervals bracketed the water table. MW-19 was damaged (bent below surface grade) and could not be sampled.

All ground water samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and methyl tert-butyl ether (MTBE) by EPA Method 8260B. Wells which contained a sufficient volume of water were also sampled for 1,2-dibromoethane (EDB) for analysis by EPA Method 8011 and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C. A summary of the ground water quality data from the monitoring wells is presented in Table 2 (Petroleum Compounds) and Table 3 (PAHs). The laboratory analytical report and chain-of-custody forms are included in Appendix B.

Purge water generated during sampling was collected in 55-gallon drums and disposed by Diversified Recycling, Rock Hill, SC. The waste disposal manifest is included in Appendix C.

3.0 ASSESSMENT RESULTS

Ground water occurs within the shallow aquifer under unconfined conditions at depths ranging from approximately 20.1 feet to 36.2 feet across the study area. Inspection of Table 1 indicates the ground water elevations, in general, were up to 5.8 feet lower than the elevations recorded during the previous ground water sampling event (June 2008). Potentiometric surface maps of the upper and intermediate portions of the shallow aquifer are included as Figures 3 and 4, respectively. Inspection of Figure 3 indicates shallow groundwater potentiometric surface highs northwest of the site and in the vicinity of the library producing a cumulative flow direction to the southeast. Figure 4 indicates that ground water flow in the intermediate portion of the aquifer is toward the east-southeast.

Free product was detected in monitoring wells MW-13R (0.54 feet), MW-14B (0.17 feet), MW-20 (0.29 feet), MW-20R (0.02 feet), and MW-32 (2.00 feet). Free product has reappeared at MW-13R; the free product thickness measured in this well during this sampling event was greater than any previously-measured thickness since well installation in 2002. Free product also reappeared at MW-14B following the last AFVR events. Free product was detected in monitoring wells MW-1, MW-2, and MW-5 during the June 2008 sampling event; these wells were dry and did not contain product during the December 2008 sampling event. The product thicknesses measured at wells MW-20 and MW-20R have decreased since the last sampling event, while the free product at MW-32 has not changed significantly.

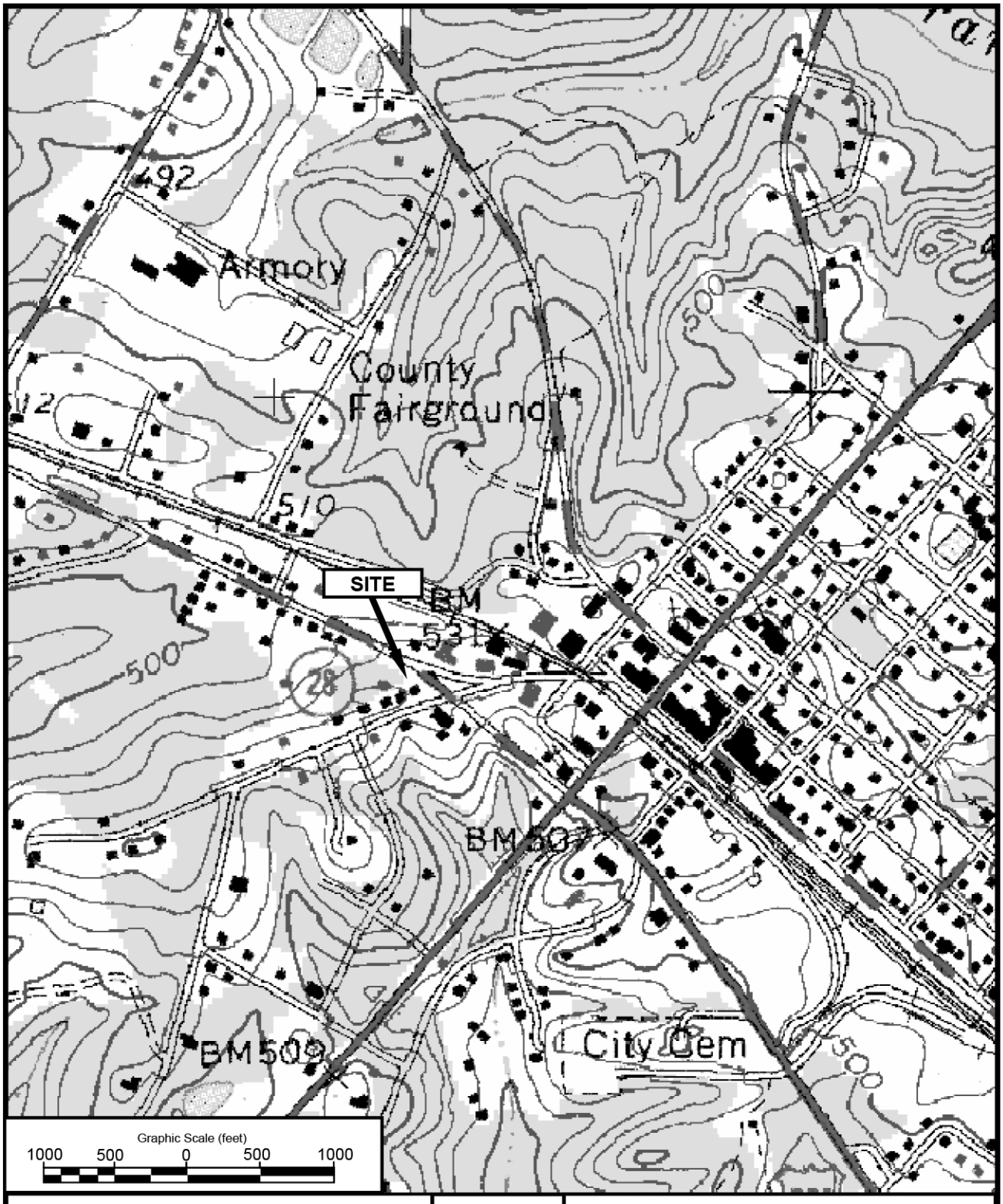
Petroleum hydrocarbon compounds as BTEX, MTBE, and naphthalene were detected above RBSLs in monitoring wells MW-4R, MW-6, MW-12R, MW-15, MW-19R, MW-25, MW-26, and PW-31. EDB was detected in wells MW-26 and PW-31. No 1,2-DCA or PAHs were detected in any of the wells sampled.

A Benzene/MTBE concentration map is included as Figure 5. Inspection of Figure 5 indicates free product likely extends from MW-5 to MW-20, comprising a plume which is approximately 370 feet long and from 50 to 170 feet wide. The zone of RBSL exceedances extends up to 470 feet northeast and 570 east of the source area (MW-5 vicinity). Contaminant concentrations at monitoring wells MW-6, MW-13R, and MW-14B have increased significantly since the last sampling event (June 2008).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties has been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former or current UST system. Terracon recommends free product removal by Aggressive Fluid Vapor Recovery (AFVR) at eight monitoring wells. Considering the separation distances between these wells, Terracon recommends separate AFVR events on monitoring wells MW-1/MW-2/MW-5 (Event 1), MW-4/MW-4R (Event 2), MW-32 (Event 3), and MW-20/MW-20R (Event 4). Terracon also recommends that future AFVR events be 10 or 12 hours in length; the groups of events would be terminated early only if the monthly 1,000 pound air emission limit is met during any one event. These groups of events could be spaced in 30 day increments to avoid air emission permitting requirements while maximizing contaminant removal.

FIGURES



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET

PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

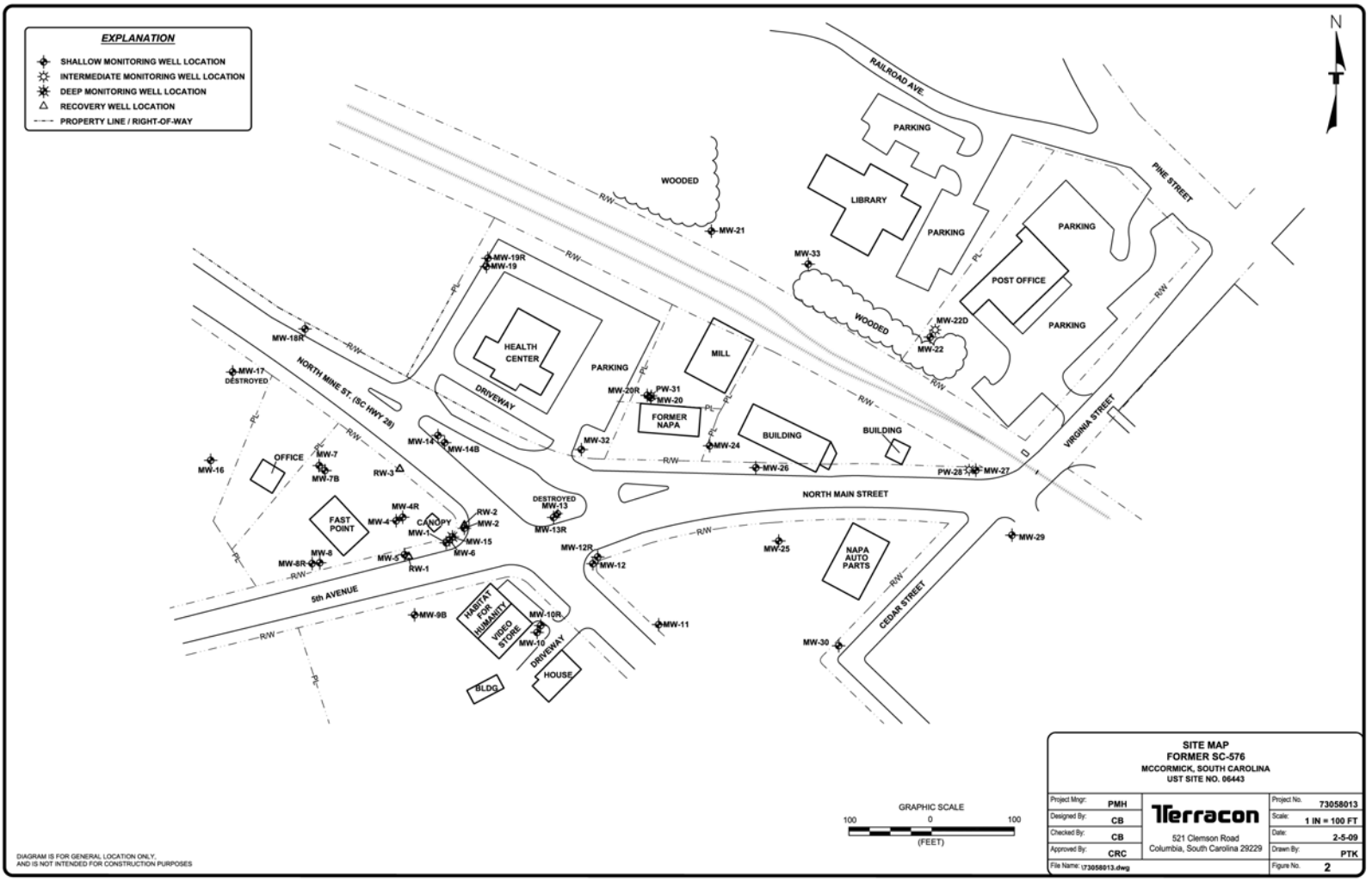
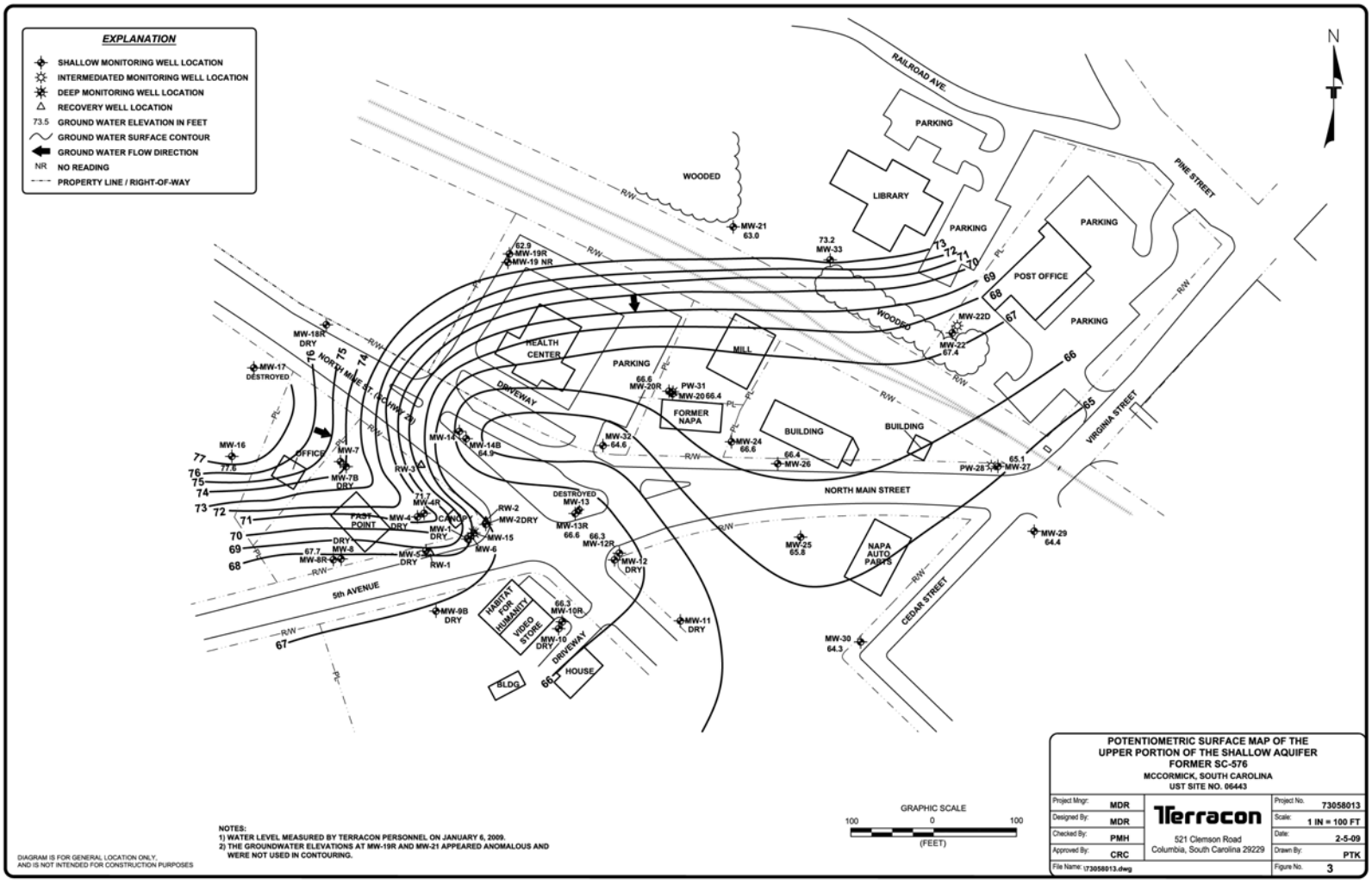


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73058013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road Columbia, South Carolina 29229	Date: 2-5-09
Approved By:	CRC		Drawn By: PTK
File Name: I73058013.dwg			Figure No. 2



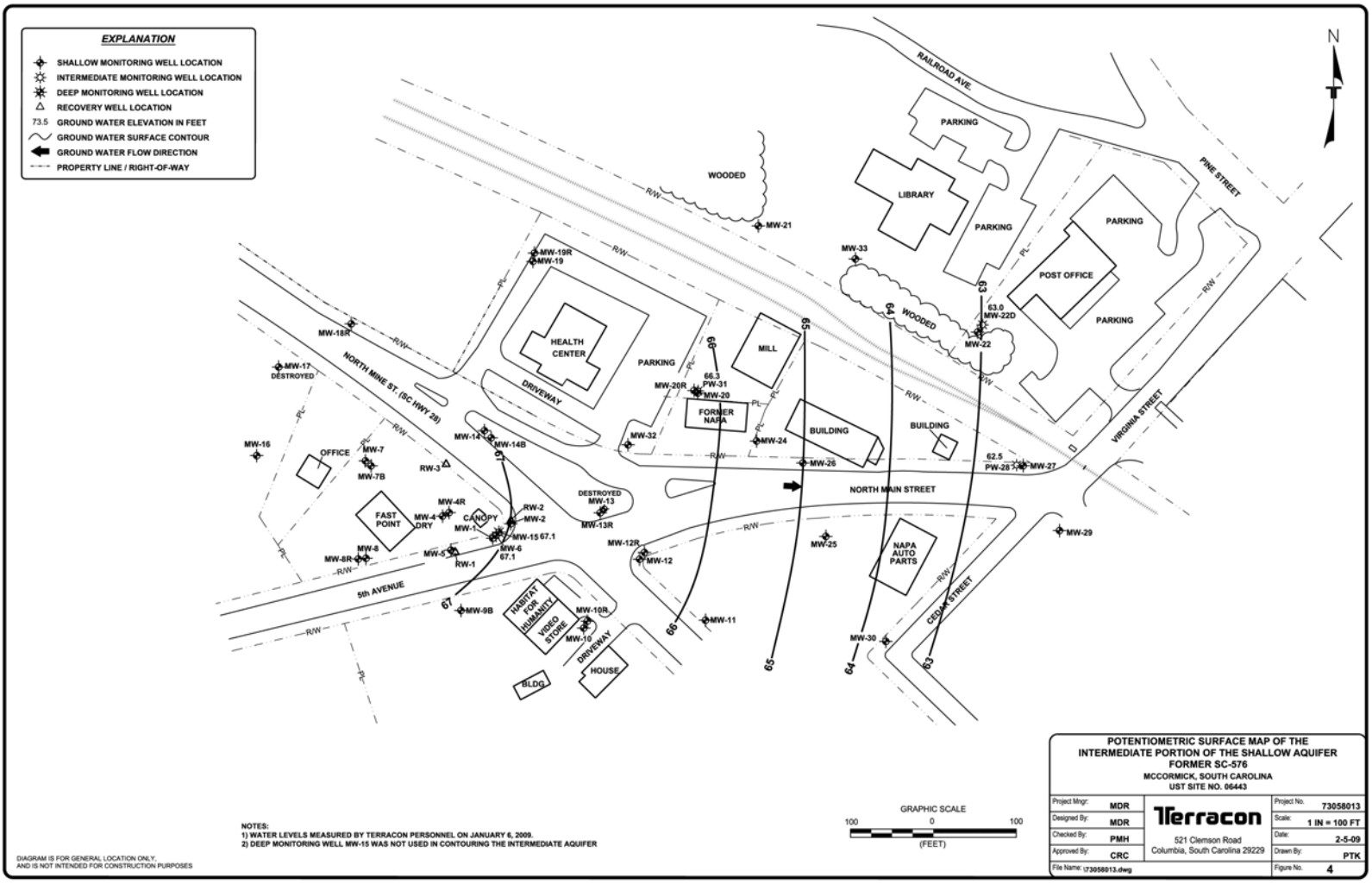
GRAPHIC SCALE
100 0 100
(FEET)

NOTES:
1) WATER LEVEL MEASURED BY TERRACON PERSONNEL ON JANUARY 6, 2009.
2) THE GROUNDWATER ELEVATIONS AT MW-19R AND MW-21 APPEARED ANOMALOUS AND WERE NOT USED IN CONTOURING.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

POTENTIOMETRIC SURFACE MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Terracon	Project No. 73058013
Designed By:	MDR		Scale: 1 IN = 100 FT
Checked By:	PMH	521 Clemson Road Columbia, South Carolina 29229	Date: 2-5-09
Approved By:	CRC		Drawn By: PTK
File Name: t73058013.dwg			Figure No. 3



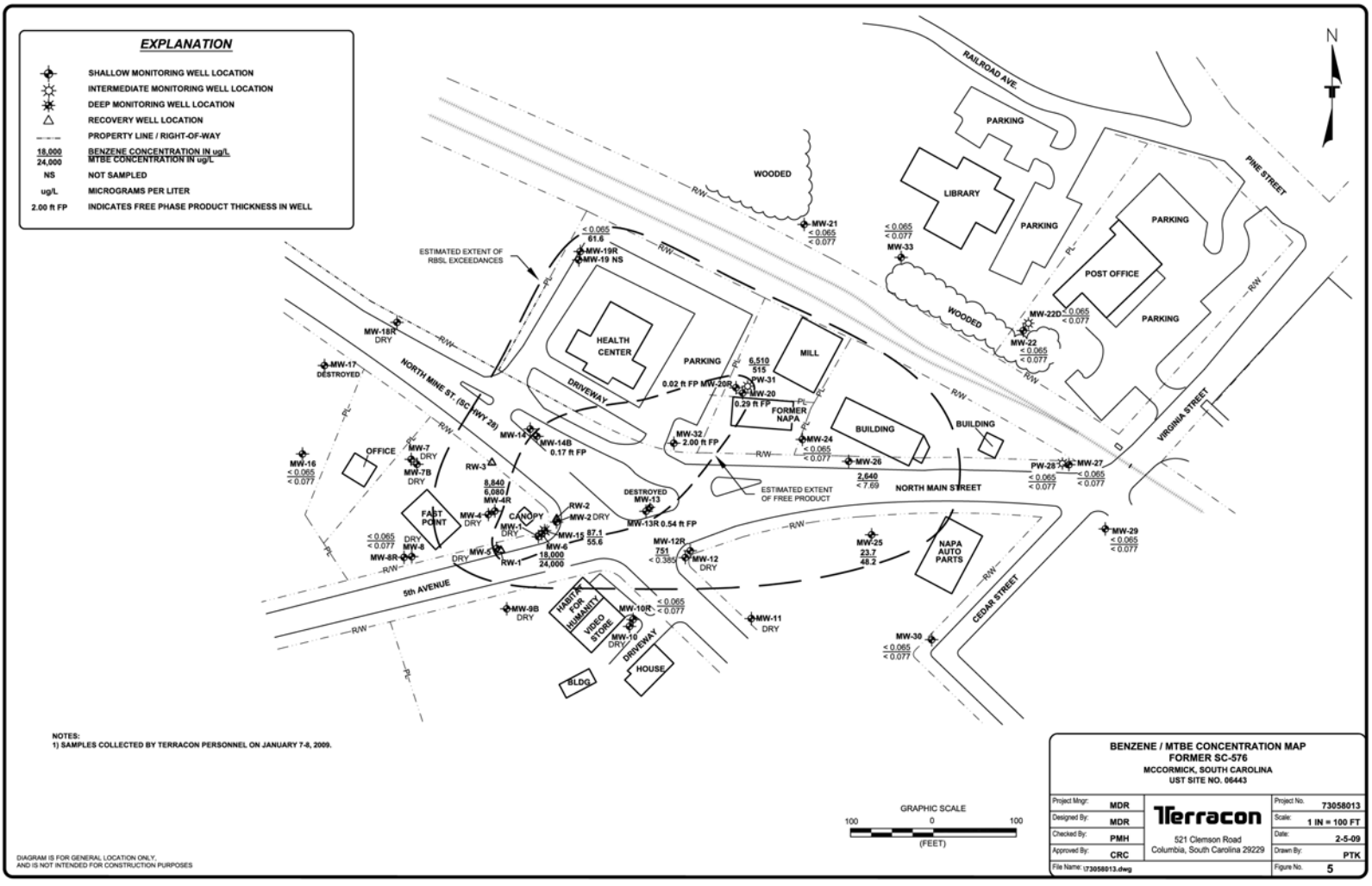
NOTES:
1) WATER LEVELS MEASURED BY TERRACON PERSONNEL ON JANUARY 6, 2009.
2) DEEP MONITORING WELL MW-15 WAS NOT USED IN CONTOURING THE INTERMEDIATE AQUIFER

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GRAPHIC SCALE
100 0 100
(FEET)

POTENTIOMETRIC SURFACE MAP OF THE INTERMEDIATE PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Terracon	Project No. 73058013
Designed By:	MDR		Scale: 1 IN = 100 FT
Checked By:	PMH	521 Clemson Road Columbia, South Carolina 29229	Date: 2-5-09
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 4



NOTES:
1) SAMPLES COLLECTED BY TERRACON PERSONNEL ON JANUARY 7-8, 2009.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GRAPHIC SCALE
100 0 100
(FEET)

BENZENE / MTBE CONCENTRATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	MDR	Project No.	73058013
Designed By:	MDR	Scale:	1 IN = 100 FT
Checked By:	PMH	Date:	2-5-09
Approved By:	CRC	Drawn By:	PTK
File Name:	I73058013.dwg	Figure No.	5

Terracon
521 Clemson Road
Columbia, South Carolina 29229

TABLES

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NC
	1/6/09			DRY			
MW-2	10/11/96	20.5 -30.5	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			27.10	28.10	**1.00**	71.99
	1/6/09			DRY			
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
	1/6/09			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
	1/6/09			ND	29.85	ND	71.71
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			
	5/28/03			21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
	1/6/09			DRY			
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86
	6/17/08			ND	19.11	ND	81.34
	1/6/09			ND	33.33	ND	67.12

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NS	NS	NS	NS
	5/28/03			ND	18.00	ND	83.43
	12/20/04			DRY			
	6/05/07			ND	28.71	ND	72.72
	6/17/08			DRY			
	1/6/09			DRY			
MW-8	10/11/96	10-20	103.85	DRY			
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
	6/17/08			ND	30.75	ND	73.14
	1/6/09			ND	36.24	ND	67.65
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			DRY			
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
	6/17/08			NM	26.65	ND	72.34
	1/6/09			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-10	10/11/96	8-18	93.53	DRY			
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
	6/17/08			ND	24.18	ND	69.13
	1/6/09			ND	26.97	ND	66.34
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY			
	6/05/07			ND	15.18	ND	70.62
	6/17/08			DRY			
	1/6/09			DRY			
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
	6/17/08			ND	25.40	ND	69.96
	1/6/09			ND	29.09	ND	66.27
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	**0.41**	77.87
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			WELL DESTROYED			
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	71.99
	1/6/09			31.23	31.77	**0.54**	66.56
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	69.94
	1/6/09			35.70	35.87	**0.17**	64.87

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58
	6/17/08			ND	28.20	ND	71.88
	1/6/09			ND	33.03	ND	67.05
MW-16	10/11/96	13-23.5	100.57	DRY			
	9/19/01			ND	22.47	ND	78.10
	9/18/02			DRY			
	5/28/03			ND	17.84	ND	82.73
	12/20/04			DRY			
	6/17/08			ND	22.85	ND	77.72
	1/6/09			ND	22.93	ND	77.64
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL DESTROYED					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL DESTROYED					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
	6/17/08			ND	30.55	ND	68.2
	1/6/09			DRY			

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY			
	6/17/08			WELL CASING BENT; BAILER OBSTRUCTED			
	1/6/09			WELL CASING BENT; BAILER OBSTRUCTED			
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
	6/17/08			ND	26.96	ND	67.11
	1/6/09			ND	31.19	ND	62.88
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33
	6/06/07			ND	28.75	ND	70.15
	6/17/08			29.80	30.53	**0.73**	67.80
	1/6/09			32.21	32.50	**0.29**	66.40
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			29.69	29.94	**0.25**	68.25
	1/6/09			31.78	31.80	**0.02**	66.58

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
	6/17/08			ND	31.66	ND	65.88
	1/6/09			ND	34.50	ND	63.04
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NS	NS	NS	NS
	6/05/07			ND	33.00	ND	67.87
	6/17/08			ND	33.98	ND	66.89
	1/6/09			ND	33.50	ND	67.37
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
	6/17/08			ND	31.42	ND	67.02
	1/6/09			ND	35.45	ND	62.99
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
	6/17/08			ND	27.38	ND	69.79
	1/6/09			ND	30.61	ND	66.56

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97
	6/17/08			ND	27.55	ND	67.42
	1/6/09			ND	29.18	ND	65.79
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			DRY			
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
	6/17/08			ND	27.51	ND	68.85
	1/6/09			ND	29.98	ND	66.38
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
	6/17/08			ND	26.63	ND	66.71
	1/6/09			ND	28.27	ND	65.07
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
	6/17/08			ND	27.00	ND	66.19
	1/6/09			ND	30.67	ND	62.52

TABLE 1
GROUND WATER ELEVATION DATA

Fast Point (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
	6/17/08			ND	26.38	ND	65.73
	1/6/09			ND	27.74	ND	64.37
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07			ND	19.31	ND	65.05
	6/17/08			ND	20.18	ND	64.18
	1/6/09			ND	20.09	ND	64.27
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
	6/17/08			ND	29.63	ND	68.50
	1/6/09			ND	31.83	ND	66.30
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			24.97	27.22	**2.25**	68.76
	1/6/09			31.11	33.11	**2.00**	64.62
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81
	6/17/08			ND	21.29	ND	73.33
	1/6/09			ND	21.39	ND	73.23

Notes:
1) Ground Water elevations corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) NS - not sampled

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-1	10/11/96	**1.03 ft FREE PRODUCT**							
	9/19/01	**0.61 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**3.81 ft FREE PRODUCT**							
	12/20/04	**1.20 ft FREE PRODUCT**							
	6/5/07	**2.35 ft FREE PRODUCT**							
	6/17/08	**> 3 ft FREE PRODUCT**							
	1/7/09	DRY							
MW-2	10/11/96	**2.53 ft FREE PRODUCT**							
	9/19/01	**1.43 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**5.89 ft FREE PRODUCT**							
	12/20/04	**1.44 ft FREE PRODUCT**							
	6/5/07	**1.98 ft FREE PRODUCT**							
	6/17/08	**1.00 ft FREE PRODUCT**							
	1/7/09	DRY							
MW-4	10/11/96	**0.84 ft FREE PRODUCT**							
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							
MW-4R	9/18/02	DRY							
	5/28/03	**1.33 ft FREE PRODUCT**							
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/5/07	**2.09 ft FREE PRODUCT**							
	6/17/08	DRY							
	1/8/09	**8,840**	**11,800**	651	7,220	**6,080**	NA	**1,480**	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-5	5/28/03	**0.83 ft FREE PRODUCT**							
	12/20/04	**1.01 ft FREE PRODUCT**							
	6/5/07	**0.98 ft FREE PRODUCT**							
	6/17/08	**0.90 ft FREE PRODUCT**							
	1/7/09	DRY							
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	BDL	**249**	NA
	9/18/02	**15,200**	684	291	2,278	**13,500**	**1.5**	**356**	NA
	5/28/03	**11,400**	213	136	1,641	**13,200**	**1.8**	**385**	NA
	12/21/04	**13,000**	300	320	1900	**15,000**	**1.2**	**400**	NA
	6/05/07	**13,500**	<200	<200	<600	**17,500**	<0.01	<1000	<1000
	6/19/08	**6,760**	< 100	< 100	< 300	**15,100**	NA	< 500	< 500
	1/7/09	**18,000**	291	293	535 J	**24,000**	< 0.0035	**967 J**	NA
MW-7B	10/11/96	**35**	94	43	174	BDL	BDL	18	NA
	8/20/98	**31**	15	41	141	BDI	BDL	**41**	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	BDL	NA
	12/20/04	DRY							
	6/05/07	4.9	9.4	1.9	10.4	4.7	<0.01	<5	<5
	6/17/08	DRY							
	1/7/09	DRY							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-8	10/11/96	DRY							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	06/05/07	DRY							
	6/17/08	DRY							
	1/7/09	DRY							
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	<1	<1	<1	<1	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	BDL	NA
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	BDL	NA
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	**0.11**	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	4.2	12.6	2.03	9.39	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	DRY							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-10	10/11/96	DRY							
	9/19/01	DRY							
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	DRY							
	6/06/07	DRY							
	1/7/09	DRY							
MW-10R	6/07/07	3.28	4.1	<1	3.6	<1	<0.010	<5	<5
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NA
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	BDL	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS
	6/17/08	DRY							
	1/7/09	DRY							
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	NA
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	BDL	NA
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	**0.18**	11.1	NA
	5/28/03	**178**	BDL	BDL	1.7	BDL	**0.14**	19.2	NA
	12/20/04	**230**	BDL	BDL	BDL	BDL	**1.1**	21	NA
	6/06/07	**332**	<10	<10	<30	<10	<0.010	<50	<50
	6/18/08	**322**	< 5.00	< 5.00	< 15.0	< 5.00	NA	**38.9**	< 25.0
	1/7/09	**751**	< 0.378	< 0.326	< 0.917	< 0.385	< 0.0035	**52.5**	NA
MW-13	10/11/96	**0.41 ft FREE PRODUCT**							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL DESTROYED							
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**3.6**	**456**	NA
	5/28/03	**0.30 ft FREE PRODUCT**							
	12/20/04	**0.20 ft FREE PRODUCT**							
	6/05/07	**0.08 ft FREE PRODUCT**							
	6/18/08	**12,100**	**5,120**	**2,370**	**11,400**	**1,450**	NS	**1,250**	< 500
	1/7/09	**0.54 ft FREE PRODUCT**							

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Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	BDL	NA
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**42.4**	**403**	NA
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**16.9**	**1,040**	NA
	9/18/02	**0.63 ft FREE PRODUCT**							
	5/28/03	**0.12 ft FREE PRODUCT**							
	12/20/04	**0.43 ft FREE PRODUCT**							
	6/05/07	**2,130**	**19,700**	**4,080**	**22,400**	<100	<0.010	**866**	<500
	6/18/08	**3,730**	**24,700**	**4,780**	**19,400**	< 500	NA	**3,360**	< 2,500
	1/7/09	**0.17 ft FREE PRODUCT**							
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/18/02	3.3	BDL	BDL	BDL	6.9	BDL	2.1	NA
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	BDL	NA
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	BDL	NA
	6/05/07	**50.5**	10.7	2	11.5	**49.6**	<0.010	<5	<5
	6/19/08	**21.1**	3.45	5.07	12.8	31.1	NA	6.34	< 5.00
	1/8/09	**81.7**	< 0.076	< 0.065	< 0.183	**55.6**	< 0.0035	2.24 J	NA

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GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NA
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	NA	< 0.118	NA
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NA
	6/05/07	WELL DESTROYED							
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/05/07	WELL DESTROYED							
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	<1	1.77	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	DRY							
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	BDL	NA
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL CASING BENT; BAILER OBSTRUCTED							
	1/7/09	WELL CASING BENT; BAILER OBSTRUCTED							

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Petroleum Compounds

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WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	BDL	NA
	6/06/07	<1	<1	<1	<3	**54.7**	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	**66.5**	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	**61.6**	< 0.0035	< 0.118	NA
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	BDL	NA
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**678**	**5,150**	NA
	9/19/01	DRY							
	12/20/04	**0.82 ft FREE PRODUCT**							
	6/07/07	**4,750**	**17,400**	**3,010**	**15,900**	**147**	<0.010	**1,230**	<500
	6/18/08	**0.73 ft FREE PRODUCT**							
	1/7/09	**0.29 ft FREE PRODUCT**							
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**46**	**446**	NA
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**E-67**	**393**	NA
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**54**	**660**	NA
	6/07/07	**8,750**	**13,800**	**1,490**	6,820	**973**	<0.010	<500	<500
	6/18/08	**0.25 ft FREE PRODUCT**							
	1/7/09	**0.02 ft FREE PRODUCT**							

TABLE 2
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Petroleum Compounds

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UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/05/07	1.52	2.89	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	1.23	1.86	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-22D	6/07/07	3.2	8.2	1.24	6.01	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	BDL	NA
	8/20/98	2.6	2	12	86	BDL	0.18	12.9	NA
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	6.4	BDL	BDL	1.6	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	0.021	BDL	NA
	6/07/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NS	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	BDL	**480**	NA
	8/20/98	**3,081**	19	6	3,046	**788**	**2.48**	**393**	NA
	9/19/01	2.64	5.37	2.1	42.2	BDL	BDL	1.09	NA
	5/29/03	**740**	4.58	BDL	269.8	**562**	**0.34**	**112**	NA
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.183	**48.2**	< 0.0035	5.01	NA
	12/20/04	**1,200**	BDL	BDL	210	**370**	**0.16**	**180**	NA
	6/05/07	**27**	9.18	1.26	5.89	**130**	<0.010	<5	<5
	6/18/08	**71.0**	1.39	< 1.00	5.77	**151**	NA	**26.1**	< 5.00
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.065	**48.2**	< 0.0035	5.01	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	BDL	NA
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**45**	**728**	NA
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	BDL	**2,070**	NA
	9/18/02	DRY							
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**E-15**	**672**	NA
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**6.1**	**940**	NA
	6/06/07	**1,730**	**8,510**	**904**	5,720	<200	<0.010	<1000	<1000
	6/18/08	**3,080**	**20,500**	**3,450**	**16,200**	< 250	NA	**2,120**	< 1,250
	1/7/09	**2,640**	**15,800**	**2,930**	**18,600**	< 7.69	**0.171**	**983**	NA
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/07/07	**8.74**	10.4	1.30	6.63	<1	0.036	<5	<5
	6/18/08	< 1.00	1.67	< 1.00	5.56	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**42**	**440**	NA
	6/07/07	**8,640**	**13,100**	**1,380**	6,830	**1,030**	<0.010	<500	<500
	6/18/08	**6,970**	**16,900**	**2,540**	9,360	**568**	NA	**1,660**	< 1,250
	1/7/09	**6,510**	**11,100**	**2,020**	9,580	**515**	**1.34**	**503 J**	NA
MW-32	6/07/07	**13,700**	**16,000**	**2,040**	**10,100**	**2,160**	**0.142**	**872**	<500
	6/18/08	**2.25 ft FREE PRODUCT**							
	1/7/09	**2.00 ft FREE PRODUCT**							
MW-33	6/07/07	**8.95**	11.6	1.07	5.87	<1	<0.010	<5	<5
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	NA	< 5.00	< 5.00
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.0035	< 0.118	NA
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*0.05*	*25*	*0.05*

Notes:

1 Results shown in boldface type indicate concentrations which exceed the RBSL for that compound
2 BDL - below laboratory method detection limit
3 ug/l - micrograms per liter or parts per billion
4 NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis
5 NA- not analyzed/ data not available
6 MTBE - Methyl-tert-butyl-ether
7 EDB - 1,2- Dibromomethane
9 1, 2 DCA - 1,2 Dichloroethane
10 RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document

TABLE 3
GROUND WATER ANALYTICAL DATA
Polycyclic Aromatic Hydrocarbon (PAH) Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anth-racene (ug/l)	Benzo(a)anthracene (ug/l)	Beno(a)pyrene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(g,h,i)perylene (ug/l)	Benzo(k)fluoranthene (ug/l)	Chrysene (ug/l)	Dibenz(a,h)anthracene (ug/l)	Fluoranthene (ug/l)	Fluorene (ug/l)	Indeno(1,2,3-cd)pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)
RBSL		**NE**	**NE**	**NE**	**10**	**NE**	**10**	**NE**	**10**	**10**	**10**	**NE**	**NE**	**NE**	**25**	**NE**	**NE**
MW-1	6/17/08	**> 3.0 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/6/09	DRY															
MW-2	6/17/08	**1.0 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/6/09	DRY															
MW-4	6/17/08	DRY															
	1/6/09	DRY															
MW-4R	6/17/08	DRY															
	1/6/09	INSUFFICIENT WATER FOR SAMPLE COLLECTION															
MW-5	6/17/08	**0.83 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/6/09	DRY															
MW-6	6/19/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	**87.6**	< 10.4	< 10.4
	1/8/09	< 0.156	< 0.139	< 0.150	< 0.386	< 0.394	< 0.240	< 0.179	< 0.139	< 0.458	< 0.139	< 0.139	< 0.139	< 0.139	**151**	< 0.139	< 0.198
MW-7B	6/17/08	DRY															
	1/6/09	DRY															
MW-8	6/17/08	DRY															
	1/6/09	DRY															
MW-8R	6/19/08	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8
	1/8/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-9B	6/19/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
	1/6/09	DRY															
MW-10	6/17/08	DRY															
	1/6/09	DRY															
MW-10R	6/19/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
	1/8/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-11	6/17/08	DRY															
	1/6/09	DRY															
MW-12	6/17/08	DRY															
	1/6/09	DRY															
MW-12R	6/18/08	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	**25.8**	< 10.9	< 10.9
	1/7/09	INSUFFICIENT WATER FOR SAMPLE COLLECTION															
MW-13	6/17/08	WELL DESTROYED															
MW-13R	6/18/08	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	< 102	**972**	< 102	< 102
	1/7/09	**0.54 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-14B	6/18/08	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	< 108	**1,520**	< 108	< 108
	1/7/09	**0.17 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-15	6/19/08	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2
	1/8/09	< 0.143	< 0.128	< 0.138	< 0.354	< 0.362	< 0.220	< 0.164	< 0.128	< 0.421	< 0.128	< 0.128	< 0.128	< 0.128	1.45 J	< 0.128	< 0.182
MW-16	6/18/08	INSUFFICIENT WATER FOR SAMPLE															
	1/8/09	INSUFFICIENT WATER FOR SAMPLE															
MW-17	6/17/08	WELL PAVED OVER															
MW-18	6/17/08	WELL GROWN OVER															
MW-18R	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
	1/6/09	DRY															
MW-19	6/17/08	WELL CASING BENT; BAILER OBSTRUCTED															
MW-19R	6/18/08	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9	< 10.9
	1/7/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-20	6/17/08	**0.73 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/7/09	**0.29 ft FREE PRODUCT; NO SAMPLE COLLECTED**															

TABLE 3
GROUND WATER ANALYTICAL DATA
Polycyclic Aromatic Hydrocarbon (PAH) Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Acenaphthene (ug/l)	Acenaphthylene (ug/l)	Anth-racene (ug/l)	Benzo(a)anthracene (ug/l)	Beno(a)pyrene (ug/l)	Benzo(b)fluoranthene (ug/l)	Benzo(g,h,i)perylene (ug/l)	Benzo(k)fluoranthene (ug/l)	Chrysene (ug/l)	Dibenz(a,h)anthracene (ug/l)	Fluoranthene (ug/l)	Fluorene (ug/l)	Indeno(1,2,3-cd)pyrene (ug/l)	Naphthalene (ug/l)	Phenanthrene (ug/l)	Pyrene (ug/l)
RBSL		**NE**	**NE**	**NE**	**10**	**NE**	**10**	**NE**	**10**	**10**	**10**	**NE**	**NE**	**NE**	**25**	**NE**	**NE**
MW-20R	6/17/08	**0.25 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/7/09	**0.02 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-21	6/18/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4
	1/7/09	< 0.143	< 0.128	< 0.138	< 0.354	< 0.362	< 0.220	< 0.164	< 0.128	< 0.421	< 0.128	< 0.128	< 0.128	< 0.128	1.45 J	< 0.128	< 0.182
MW-22	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
	1/7/09	< 0.156	< 0.139	< 0.150	< 0.386	< 0.394	< 0.240	< 0.179	< 0.139	< 0.458	< 0.139	< 0.139	< 0.139	< 0.139	< 0.256	< 0.139	< 0.198
MW-22D	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
	1/7/09	< 0.147	< 0.132	< 0.142	< 0.366	< 0.373	< 0.227	< 0.169	< 0.132	< 0.434	< 0.132	< 0.132	< 0.132	< 0.132	< 0.242	< 0.132	< 0.187
MW-24	6/18/08	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8	< 10.8
	1/7/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-25	6/18/08	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	< 10.3	**29.6**	< 10.3	< 10.3
	1/7/09	INSUFFICIENT WATER FOR SAMPLE															
MW-26	6/18/08	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	< 53.8	**625**	< 53.8	< 53.8
	1/7/09	INSUFFICIENT WATER FOR SAMPLE															
MW-27	6/18/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
	1/7/09	< 0.143	< 0.128	< 0.138	< 0.354	< 0.362	< 0.220	< 0.164	< 0.128	< 0.421	< 0.128	< 0.128	< 0.128	< 0.128	1.45 J	< 0.128	< 0.182
PW-28	6/18/08	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4
	1/7/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-29	6/18/08	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2	< 10.2
	1/7/09	< 0.144	< 0.129	< 0.139	< 0.358	< 0.366	< 0.222	< 0.166	< 0.129	< 0.425	< 0.129	< 0.129	< 0.129	< 0.129	< 0.237	< 0.129	< 0.184
MW-30	6/18/08	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6	< 10.6
	1/7/09	< 0.143	< 0.128	< 0.138	< 0.354	< 0.362	< 0.220	< 0.164	< 0.128	< 0.421	< 0.128	< 0.128	< 0.128	< 0.128	1.45 J	< 0.128	< 0.182
PW-31	6/18/08	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3	< 54.3
	1/7/09	< 0.141	< 0.126	< 0.136	< 0.351	< 0.358	< 0.218	< 0.163	< 0.126	< 0.416	< 0.126	< 0.126	< 0.126	< 0.126	**507**	< 0.126	< 0.180
MW-32	6/17/08	**2.25 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
	1/7/09	**2.00 ft FREE PRODUCT; NO SAMPLE COLLECTED**															
MW-33	6/18/08	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1	< 10.1
	1/7/09	< 0.156	< 0.139	< 0.150	< 0.386	< 0.394	< 0.240	< 0.179	< 0.139	< 0.458	< 0.139	< 0.139	< 0.139	< 0.139	9.70 J	< 0.139	< 0.198

NOTES:
1) ug/l - micrograms per liter
2) RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document
3) The Risk-Based Screening Level as defined by the SCDHEC RBCA Document for total PAHs in ground water is 25 ug/l.
4) NE - Not Established

APPENDIX A

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-4R
Date:	1/8/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Lawler
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	930

Total Well Depth:	20.5-30.5	ft. BTOC
Depth to water:	29.85	ft. BTOC
Length of Water Column (LWC):	0.65	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0.11	gal.
3 Casing Volumes:		gal.

Remarks: Well out of B, M, MTBE

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-6
Date:	1/8/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Waller
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1000

Total Well Depth:	37.58	ft. BTOC
Depth to water:	33.33	ft. BTOC
Length of Water Column (LWC):	24.67	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	4.19	gal.
3 Casing Volumes:	12.58	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	4.19	8.2	12.58				
Time							
pH	6.18	6.45	6.29				
Specific Conductivity (umhos/cm)	11.80 m	8.95	8.46 m				
Water Temperature ©	13.1	15.6	13.8				
Turbidity	low	—	✓				
Dissolved Oxygen (mg/L)			3.20				

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-7B
Date:	1/8/09
Site Name:	SC-576
Project No.:	7385-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~850~~ hr

Total Well Depth:	15-30	ft. BTOC	
Depth to water:	24.73	ft. BTOC	
Length of Water Column (LWC):	0.27	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x	.17	= 0.0459	gal.
3 Casing Volumes:			gal.

Remarks: no H2O
no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-8R
Date:	1/5/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	920

Total Well Depth:	25-40	ft. BTOC
Depth to water:	36.24	ft. BTOC
Length of Water Column (LWC):	3.76	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0.63	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time							
pH	6.10						
Specific Conductivity (umhos/cm)	7.88ms						
Water Temperature ©	11.2						
Turbidity	low						
Dissolved Oxygen (mg/L)	5.14						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-10R
Date:	1/8/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Lawler
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	830

Total Well Depth:	24-39	ft. BTOC
Depth to water:	26.97	ft. BTOC
Length of Water Column (LWC):	12.03	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.04	gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.86						
Specific Conductivity (umhos/cm)	930						
Water Temperature ©	10.2						
Turbidity	low						
Dissolved Oxygen (mg/L)	8.92						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-13R
Date:	1/2/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Waller
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	29-44	ft. BTOC
Depth to water:	3.77	ft. BTOC
Length of Water Column (LWC):	12.23	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.07	gal.
3 Casing Volumes:		gal.

Remarks: 0.5" in of FP
no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-17R
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1630

Total Well Depth:	30-45	ft. BTOC
Depth to water:	29.09	ft. BTOC
Length of Water Column (LWC):	15.91	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.7	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.88						
Specific Conductivity (umhos/cm)	587						
Water Temperature ©	13.9						
Turbidity	low						
Dissolved Oxygen (mg/L)	5.23						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-14B
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1530~~

Total Well Depth:	20-40	ft. BTOC
Depth to water:	35.87	ft. BTOC
Length of Water Column (LWC):	4.13	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0.70	gal.
3 Casing Volumes:		gal.

Remarks: 20' of FP
no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-15
Date:	1/8/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1100

Total Well Depth:	125-130	ft. BTOC
Depth to water:	33.03	ft. BTOC
Length of Water Column (LWC):	96.97	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	16.48	gal.
3 Casing Volumes:	49.45	gal.

Remarks: used pump
pump dry @ 42.0 gal, take sample

Field Analyses

Volume Purged (gal.)	16.48	32.96	~~49.45~~ 42.00				
Time							
pH	8.55	6.59	6.31				
Specific Conductivity (umhos/cm)	11.17 ms	8.11 ms	6.76 ms				
Water Temperature ©	13.2	15.6	16.8				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			4.52				

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-3B/16
Date:	1/8/09
Site Name:	SC-576
Project No.:	73[illegible]5-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	800

Total Well Depth:	13-23	ft. BTOC
Depth to water:	22.93	ft. BTOC
Length of Water Column (LWC):	~~10.07~~ 0.07	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	~~1.71~~	gal.
3 Casing Volumes:	~~5.31~~	gal.

Remarks: 1 ml of B, M MTBE
maybe rain water

Field Analyses

Volume Purged (gal.)	~~1.71~~	~~3.4~~	~~5.31~~				
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-19R
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Waller
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1510

Total Well Depth:	30-45	ft. BTOC
Depth to water:	31.19	ft. BTOC
Length of Water Column (LWC):	13.81	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.34	gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.59						
Specific Conductivity (umhos/cm)	5.89ms						
Water Temperature ©	13.5						
Turbidity	low						
Dissolved Oxygen (mg/L)	4.55						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-20
Date:	
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	18-38.5	ft. BTOC
Depth to water:	32.50	ft. BTOC
Length of Water Column (LWC):	6.0	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.02	gal.
3 Casing Volumes:		gal.

Remarks: ~~2 of the probes~~ ~~no sample taken~~
35' in of FP
no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-20R
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1440

Total Well Depth:	34.5-39.5	ft. BTOC
Depth to water:	31.80	ft. BTOC
Length of Water Column (LWC):	7.7	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.309	gal.
3 Casing Volumes:	3.9	gal.

Remarks: ~~3.5" in of FP~~ wh
~~no sample taken~~
0.25" in of FP
no sample taken

Field Analyses

Volume Purged (gal.)	1.3	2.6	3.9				
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Well ID:	MW-21
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	800

Total Well Depth:	30.3 - 40.3	ft. BTOC
Depth to water:	~~35.2~~ ~34.50	ft. BTOC
Length of Water Column (LWC):	5.8	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0.986	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time	~~6.2~~						
pH	6.28						
Specific Conductivity (umhos/cm)	119.1						
Water Temperature ©	15.6						
Turbidity	low						
Dissolved Oxygen (mg/L)	6.67						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-22
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Waller
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	900

Total Well Depth:	32-42	ft. BTOC
Depth to water:	33.50	ft. BTOC
Length of Water Column (LWC):	8.5	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.44	gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.81						
Specific Conductivity (umhos/cm)	5.60						
Water Temperature ©	14.8						
Turbidity	low						
Dissolved Oxygen (mg/L)	7.64						

Terracon

Groundwater Sampling Log

Well ID:	MW-22D
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	920

Total Well Depth:	52-57	ft. BTOC
Depth to water:	35.45	ft. BTOC
Length of Water Column (LWC):	21.55	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.66	gal.
3 Casing Volumes:	10.99	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	3.66	7.2	10.99				
Time							
pH	6.12	6.06	5.76 ms				
Specific Conductivity (umhos/cm)	5.89 ms	113.2 ms	5.79 ms				
Water Temperature ©	15.2	15.4	14.8				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			6.90				

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-24
Date:	9/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Waller
Weather Conditions:	Rainy
Air Temperature:	60°
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1220

Total Well Depth:	3540	ft. BTOC
Depth to water:	30.61	ft. BTOC
Length of Water Column (LWC):	9.39	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.59	gal.
3 Casing Volumes:	4.6	gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	1.59	3	4.6				
Time							
pH	5.85	5.81	5.82				
Specific Conductivity (umhos/cm)	93.5	91.2	98.9				
Water Temperature ©	17.0	17.1	17.3				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			4.27				

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-25
Date:	1/7/09
Site Name:	SC-576
Project No.:	7365-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1610

Total Well Depth:	15-30	ft. BTOC
Depth to water:	29.18	ft. BTOC
Length of Water Column (LWC):	0.82	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	0.1394	gal.
3 Casing Volumes:		gal.

Remarks: 2 vol of BTEX MTBE
2 vol of EDB

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-26
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1200

Total Well Depth:	15-30	ft. BTOC
Depth to water:	29.98	ft. BTOC
Length of Water Column (LWC):	0.02	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =		gal.
3 Casing Volumes:		gal.

Remarks: 2 vials of B, M, MTBE
2 vials of EDB

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-27
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1100

Total Well Depth:	25-40	ft. BTOC
Depth to water:	28.27	ft. BTOC
Length of Water Column (LWC):	11.73	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.99	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.94						
Specific Conductivity (umhos/cm)	76.5us						
Water Temperature ©	15.9						
Turbidity	low						
Dissolved Oxygen (mg/L)	5.39						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	PW-28
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1130

Total Well Depth:	50-55	ft. BTOC
Depth to water:	30.67	ft. BTOC
Length of Water Column (LWC):	24.33	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	4.13	gal.
3 Casing Volumes:	12.39	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	4.13	8.2	12.39				
Time							
pH	6.10	6.02	6.06				
Specific Conductivity (umhos/cm)	6014	12516	5754				
Water Temperature ©	16.7	17.9	18.5				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			5.17				

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-29
Date:	1/7/09
Site Name:	SC-576
Project No.:	7365-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1010

Total Well Depth:	23.38	ft. BTOC
Depth to water:	27.74	ft. BTOC
Length of Water Column (LWC):	10.24	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.744	gal.
3 Casing Volumes:		gal.

Remarks:

Field Analyses

Volume Purged (gal.)							
Time							
pH	~~7.52~~ 5.78						
Specific Conductivity (umhos/cm)	56.2 ms						
Water Temperature ©	15.6						
Turbidity	low						
Dissolved Oxygen (mg/L)	7.37						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-30
Date:	1/7/09
Site Name:	SC-576
Project No.:	7365-8013
Field Personnel:	W.Lyle
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	950

Total Well Depth:	11-76	ft. BTOC
Depth to water:	20.09	ft. BTOC
Length of Water Column (LWC):	5.91	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.00	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time							
pH	5.92						
Specific Conductivity (umhos/cm)	88.4ms						
Water Temperature ©	15.3						
Turbidity	low						
Dissolved Oxygen (mg/L)	5.76						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	PW-31
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W.Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1400

Total Well Depth:	50-55	ft. BTOC
Depth to water:	31.83	ft. BTOC
Length of Water Column (LWC):	23.17	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.9	gal.
3 Casing Volumes:	11.81	gal.

Remarks: ____

Field Analyses

Volume Purged (gal.)	3.9	7.8	11.81				
Time							
pH	6.08	6.00	5.93				
Specific Conductivity (umhos/cm)	7.86ms	7.59	6.82				
Water Temperature ©	16.5	16.1	15.7				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			3.63				

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-32
Date:	1/7/09
Site Name:	SC-576
Project No.:	7305-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1390~~ NW

Total Well Depth:	20-35	ft. BTOC
Depth to water:	33.11	ft. BTOC
Length of Water Column (LWC):	1.89	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =		gal.
3 Casing Volumes:		gal.

Remarks: 2.0 ft of fine product no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-33
Date:	1/7/09
Site Name:	SC-576
Project No.:	7385-8013
Field Personnel:	W. Walker
Weather Conditions:	Rainy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	830

Total Well Depth:	23.38	ft. BTOC
Depth to water:	21.79	ft. BTOC
Length of Water Column (LWC):	16.21	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.7	gal.
3 Casing Volumes:	8.26	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	2.7	5.4	8.26				
Time							
pH	6.33	6.26	6.07				
Specific Conductivity (umhos/cm)	9.15ms	300.7ms	9.13				
Water Temperature ©	15.11	15.9	14.4				
Turbidity	low	—	—				
Dissolved Oxygen (mg/L)			7.51				

APPENDIX B

ACCESS
ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT
Terracon
521 Clemson Road
Columbia, SC 29229

ATTENTION
Melissa Roberts

PROJECT ID
SC-576

LABORATORY REPORT NUMBER
209010934

DATE
01/15/2009

Primary Data Review By

Curtis Ekker
Thu Jan 15 16:52:35 2009

Curtis Ekker
Data Validation Manager, GCAL

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical, Inc.
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 GSRI Rd. Baton Rouge, LA 70820.**

- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**

- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

NELAP CERTIFICATE NUMBER 01955

ANALYTICAL RESULTS

PERFORMED BY

GULF COAST ANALYTICAL LABORATORIES, INC.

Report Date 01/15/2009

GCAL Report 209010934

Deliver To	Terracon 521 Clemson Road Columbia, SC 29229 803-741-9000
Attn	Melissa Roberts

Project SC-576

CASE NARRATIVE

Client: Terracon **Report:** 209010934

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES MASS SPECTROMETRY

In the SW-846 8260B analysis, samples 20901093418 (PW-31), 20901093401 (MW-4R), 20901093404 (MW-26), 20901093405 (MW-6) and 20901093408 (MW-12R) had to be diluted to bracket the concentration of target compounds within the calibration range of the instrument.

In the SW-846 8260B analysis for QC batch 404202, the MS/MSD exhibited failures for the recoveries and/or RPDs. This is due to the high concentration of target analytes in the native sample.

SEMI-VOLATILES MASS SPECTROMETRY

In the MSSV-8270 analysis of sample 20901093416 (MW-29), the surrogate recoveries were below QC limits, however there was insufficient sample volume to re-extract. All surrogate recoveries were above 10%.

In the SW-846 8270C analysis, sample 20901093418 (PW-31) had to be diluted to bracket the concentration of target compounds within the calibration range of the instrument.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified RDL
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates an estimated value
U	Indicates the compound was analyzed for but not detected
B	(ORGANICS) Indicates the analyte was detected in the associated Method Blank
B	(INORGANICS) Indicates the result is between the RDL and MDL

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with ISO Guide 25 and NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Curtis Ekker
Thu Jan 15 16:52:56 2009

CURTIS EKKER
DATA VALIDATION MANAGER
GCAL REPORT 209010934

THIS REPORT CONTAINS _____ PAGES.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093401	MW-4R	Water	01/08/2009 09:30	01/09/2009 09:45
20901093402	MW-16	Water	01/08/2009 08:00	01/09/2009 09:45
20901093403	MW-25	Water	01/07/2009 16:10	01/09/2009 09:45
20901093404	MW-26	Water	01/07/2009 12:00	01/09/2009 09:45
20901093405	MW-6	Water	01/08/2009 10:00	01/09/2009 09:45
20901093406	MW-8R	Water	01/08/2009 09:20	01/09/2009 09:45
20901093407	MW-10R	Water	01/08/2009 08:30	01/09/2009 09:45
20901093408	MW-12R	Water	01/07/2009 10:30	01/09/2009 09:45
20901093409	MW-19R	Water	01/07/2009 15:10	01/09/2009 09:45
20901093410	MW-21	Water	01/07/2009 08:00	01/09/2009 09:45
20901093411	MW-22	Water	01/07/2009 09:00	01/09/2009 09:45
20901093412	MW-22D	Water	01/07/2009 09:20	01/09/2009 09:45
20901093413	MW-24	Water	01/07/2009 12:20	01/09/2009 09:45
20901093414	MW-27	Water	01/07/2009 11:00	01/09/2009 09:45
20901093415	PW-28	Water	01/07/2009 11:30	01/09/2009 09:45
20901093416	MW-29	Water	01/07/2009 10:10	01/09/2009 09:45
20901093417	MW-30	Water	01/07/2009 09:50	01/09/2009 09:45
20901093418	PW-31	Water	01/07/2009 14:00	01/09/2009 09:45
20901093419	MW-33	Water	01/07/2009 08:30	01/09/2009 09:45
20901093420	MW-15	Water	01/08/2009 11:00	01/09/2009 09:45

Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093401	**MW-4R**	Water	01/08/2009 09:30	01/09/2009 09:45

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	8840	200	13.0	ug/L
108-88-3	Toluene	11800	200	15.1	ug/L
100-41-4	Ethylbenzene	651	200	13.0	ug/L
1330-20-7	Xylene (total)	7220	600	36.7	ug/L
91-20-3	Naphthalene	1480	1000	23.6	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	6080	200	15.4	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093403	**MW-25**	Water	01/07/2009 16:10	01/09/2009 09:45

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	23.7	1.00	0.065	ug/L
91-20-3	Naphthalene	5.01	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	48.2	1.00	0.077	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093404	**MW-26**	Water	01/07/2009 12:00	01/09/2009 09:45

SW-846 8011

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.171	0.010	0.00350	ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	2640	100	6.49	ug/L
108-88-3	Toluene	15800	100	7.55	ug/L
100-41-4	Ethylbenzene	2930	100	6.52	ug/L
1330-20-7	Xylene (total)	18600	300	18.3	ug/L
91-20-3	Naphthalene	983	500	11.8	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093405	**MW-6**	Water	01/08/2009 10:00	01/09/2009 09:45

SW-846 8270C

CAS#	Parameter	Result	RDL	MDL	Units
91-20-3	Naphthalene	151	11.1	0.256	ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093405	**MW-6**	Water	01/08/2009 10:00	01/09/2009 09:45

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	18000	200	13.0	ug/L
108-88-3	Toluene	291	200	15.1	ug/L
100-41-4	Ethylbenzene	293	200	13.0	ug/L
1330-20-7	Xylene (total)	535J	600	36.7	ug/L
91-20-3	Naphthalene	967J	1000	23.6	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	24000	200	15.4	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093408	**MW-12R**	Water	01/07/2009 10:30	01/09/2009 09:45

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	751	5.00	0.325	ug/L
91-20-3	Naphthalene	52.5	25.0	0.591	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093409	**MW-19R**	Water	01/07/2009 15:10	01/09/2009 09:45

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
1634-04-4	tert-Butyl methyl ether (MTBE)	61.6	1.00	0.077	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093418	**PW-31**	Water	01/07/2009 14:00	01/09/2009 09:45

SW-846 8270C

CAS#	Parameter	Result	RDL	MDL	Units
91-20-3	Naphthalene	507	50.5	1.16	ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	6510	200	13.0	ug/L
108-88-3	Toluene	11100	200	15.1	ug/L
100-41-4	Ethylbenzene	2020	200	13.0	ug/L
1330-20-7	Xylene (total)	9580	600	36.7	ug/L
91-20-3	Naphthalene	503J	1000	23.6	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	515	200	15.4	ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093418	**PW-31**	Water	01/07/2009 14:00	01/09/2009 09:45

SW-846 8011

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	1.34	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093419	**MW-33**	Water	01/07/2009 08:30	01/09/2009 09:45

SW-846 8270C

CAS#	Parameter	Result	RDL	MDL	Units
91-20-3	Naphthalene	9.70J	11.1	0.256	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093420	**MW-15**	Water	01/08/2009 11:00	01/09/2009 09:45

SW-846 8270C

CAS#	Parameter	Result	RDL	MDL	Units
91-20-3	Naphthalene	1.45J	10.2	0.235	ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	81.7	1.00	0.065	ug/L
91-20-3	Naphthalene	2.24J	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	55.6	1.00	0.077	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093401	**MW-4R**	Water	01/08/2009 09:30	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			200	01/10/2009 20:59	JCK	404202

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	8840	200	13.0	ug/L
108-88-3	Toluene	11800	200	15.1	ug/L
100-41-4	Ethylbenzene	651	200	13.0	ug/L
1330-20-7	Xylene (total)	7220	600	36.7	ug/L
91-20-3	Naphthalene	1480	1000	23.6	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	6080	200	15.4	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	9580	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	10000	10300	ug/L	103	77 - 127
2037-26-5	Toluene d8	10000	11200	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	10400	ug/L	104	71 - 127

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093402	**MW-16**	Water	01/08/2009 08:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/10/2009 21:22	JCK	404202

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	48.4	ug/L	97	78 - 130
1868-53-7	Dibromofluoromethane	50	51.6	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	57.4	ug/L	115	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.5	ug/L	107	71 - 127

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093403	**MW-25**	Water	01/07/2009 16:10	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/10/2009 21:44	JCK	404202

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	**Benzene**	**23.7**	**1.00**	**0.065**	**ug/L**
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	**Naphthalene**	**5.01**	**5.00**	**0.118**	**ug/L**
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**48.2**	**1.00**	**0.077**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	48.7	ug/L	97	78 - 130
1868-53-7	Dibromofluoromethane	50	51	ug/L	102	77 - 127
2037-26-5	Toluene d8	50	57.5	ug/L	115	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.2	ug/L	100	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 20:45	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093404	**MW-26**	Water	01/07/2009 12:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	01/10/2009 22:07	JCK	404202

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	**Benzene**	**2640**	**100**	**6.49**	**ug/L**
108-88-3	**Toluene**	**15800**	**100**	**7.55**	**ug/L**
100-41-4	**Ethylbenzene**	**2930**	**100**	**6.52**	**ug/L**
1330-20-7	**Xylene (total)**	**18600**	**300**	**18.3**	**ug/L**
91-20-3	**Naphthalene**	**983**	**500**	**11.8**	**ug/L**
1634-04-4	tert-Butyl methyl ether (MTBE)	7.69U	100	7.69	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	4820	ug/L	96	78 - 130
1868-53-7	Dibromofluoromethane	5000	4870	ug/L	97	77 - 127
2037-26-5	Toluene d8	5000	5750	ug/L	115	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5280	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 21:07	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	**1,2-Dibromoethane**	**0.171**	**0.010**	**0.00350**	**ug/L**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093405	**MW-6**	Water	01/08/2009 10:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			200	01/11/2009 19:06	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	**Benzene**	**18000**	**200**	**13.0**	**ug/L**
108-88-3	**Toluene**	**291**	**200**	**15.1**	**ug/L**
100-41-4	**Ethylbenzene**	**293**	**200**	**13.0**	**ug/L**
1330-20-7	**Xylene (total)**	**535J**	**600**	**36.7**	**ug/L**
91-20-3	**Naphthalene**	**967J**	**1000**	**23.6**	**ug/L**
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**24000**	**200**	**15.4**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	9770	ug/L	98	78 - 130
1868-53-7	Dibromofluoromethane	10000	10300	ug/L	103	77 - 127
2037-26-5	Toluene d8	10000	11400	ug/L	114	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	10100	ug/L	101	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 17:31	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.156U	11.1	0.156	ug/L
208-96-8	Acenaphthylene	0.139U	11.1	0.139	ug/L
120-12-7	Anthracene	0.150U	11.1	0.150	ug/L
56-55-3	Benzo(a)anthracene	0.386U	11.1	0.386	ug/L
50-32-8	Benzo(a)pyrene	0.394U	11.1	0.394	ug/L
205-99-2	Benzo(b)fluoranthene	0.240U	11.1	0.240	ug/L
191-24-2	Benzo(g,h,i)perylene	0.179U	11.1	0.179	ug/L
207-08-9	Benzo(k)fluoranthene	0.139U	11.1	0.139	ug/L
218-01-9	Chrysene	0.458U	11.1	0.458	ug/L
53-70-3	Dibenz(a,h)anthracene	0.139U	11.1	0.139	ug/L
206-44-0	Fluoranthene	0.139U	11.1	0.139	ug/L
86-73-7	Fluorene	0.139U	11.1	0.139	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.139U	11.1	0.139	ug/L
91-20-3	**Naphthalene**	**151**	**11.1**	**0.256**	**ug/L**
85-01-8	Phenanthrene	0.139U	11.1	0.139	ug/L
129-00-0	Pyrene	0.198U	11.1	0.198	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	55.6	47.3	ug/L	85	52 - 120
321-60-8	2-Fluorobiphenyl	55.6	38	ug/L	68	16 - 128
1718-51-0	Terphenyl-d14	55.6	38.2	ug/L	69	43 - 138
4165-62-2	Phenol-d5	111	24.4	ug/L	22	10 - 120
367-12-4	2-Fluorophenol	111	52.4	ug/L	47	10 - 120
118-79-6	2,4,6-Tribromophenol	111	76.2	ug/L	69	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093405	**MW-6**	Water	01/08/2009 10:00	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 21:28	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093406	**MW-8R**	Water	01/08/2009 09:20	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 19:28	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	48.8	ug/L	98	78 - 130
1868-53-7	Dibromofluoromethane	50	51.4	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	57.6	ug/L	115	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	55.2	ug/L	110	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 17:47	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	39.6	ug/L	77	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	40	ug/L	78	16 - 128
1718-51-0	Terphenyl-d14	51.5	37.2	ug/L	72	43 - 138
4165-62-2	Phenol-d5	103	30.6	ug/L	30	10 - 120
367-12-4	2-Fluorophenol	103	47.9	ug/L	46	10 - 120
118-79-6	2,4,6-Tribromophenol	103	82.9	ug/L	80	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093406	**MW-8R**	Water	01/08/2009 09:20	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 21:49	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093407	**MW-10R**	Water	01/08/2009 08:30	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 19:51	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.4	ug/L	93	78 - 130
1868-53-7	Dibromofluoromethane	50	51.6	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	58.2	ug/L	116	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.2	ug/L	106	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 18:02	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	35.1	ug/L	68	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	36	ug/L	70	16 - 128
1718-51-0	Terphenyl-d14	51.5	34.3	ug/L	67	43 - 138
4165-62-2	Phenol-d5	103	24.9	ug/L	24	10 - 120
367-12-4	2-Fluorophenol	103	42.2	ug/L	41	10 - 120
118-79-6	2,4,6-Tribromophenol	103	77.5	ug/L	75	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093407	**MW-10R**	Water	01/08/2009 08:30	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 22:31	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093408	**MW-12R**	Water	01/07/2009 10:30	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			5	01/11/2009 20:15	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	**Benzene**	**751**	**5.00**	**0.325**	**ug/L**
108-88-3	Toluene	0.378U	5.00	0.378	ug/L
100-41-4	Ethylbenzene	0.326U	5.00	0.326	ug/L
1330-20-7	Xylene (total)	0.917U	15.0	0.917	ug/L
91-20-3	**Naphthalene**	**52.5**	**25.0**	**0.591**	**ug/L**
1634-04-4	tert-Butyl methyl ether (MTBE)	0.385U	5.00	0.385	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	243	ug/L	97	78 - 130
1868-53-7	Dibromofluoromethane	250	254	ug/L	102	77 - 127
2037-26-5	Toluene d8	250	283	ug/L	113	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	261	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 22:52	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093409	**MW-19R**	Water	01/07/2009 15:10	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 20:38	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**61.6**	**1.00**	**0.077**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.6	ug/L	95	78 - 130
1868-53-7	Dibromofluoromethane	50	51.7	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	58	ug/L	116	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	55.3	ug/L	111	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 18:17	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	40.4	ug/L	78	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	39.9	ug/L	77	16 - 128
1718-51-0	Terphenyl-d14	51.5	40	ug/L	78	43 - 138
4165-62-2	Phenol-d5	103	28.5	ug/L	28	10 - 120
367-12-4	2-Fluorophenol	103	45.6	ug/L	44	10 - 120
118-79-6	2,4,6-Tribromophenol	103	85.4	ug/L	83	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093409	**MW-19R**	Water	01/07/2009 15:10	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 23:13	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093410	**MW-21**	Water	01/07/2009 08:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 21:00	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47.7	ug/L	95	78 - 130
1868-53-7	Dibromofluoromethane	50	53.8	ug/L	108	77 - 127
2037-26-5	Toluene d8	50	58.5	ug/L	117	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	54.9	ug/L	110	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 18:32	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.143U	10.2	0.143	ug/L
208-96-8	Acenaphthylene	0.128U	10.2	0.128	ug/L
120-12-7	Anthracene	0.138U	10.2	0.138	ug/L
56-55-3	Benzo(a)anthracene	0.354U	10.2	0.354	ug/L
50-32-8	Benzo(a)pyrene	0.362U	10.2	0.362	ug/L
205-99-2	Benzo(b)fluoranthene	0.220U	10.2	0.220	ug/L
191-24-2	Benzo(g,h,i)perylene	0.164U	10.2	0.164	ug/L
207-08-9	Benzo(k)fluoranthene	0.128U	10.2	0.128	ug/L
218-01-9	Chrysene	0.421U	10.2	0.421	ug/L
53-70-3	Dibenz(a,h)anthracene	0.128U	10.2	0.128	ug/L
206-44-0	Fluoranthene	0.128U	10.2	0.128	ug/L
86-73-7	Fluorene	0.128U	10.2	0.128	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.128U	10.2	0.128	ug/L
91-20-3	Naphthalene	0.235U	10.2	0.235	ug/L
85-01-8	Phenanthrene	0.128U	10.2	0.128	ug/L
129-00-0	Pyrene	0.182U	10.2	0.182	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	39.5	ug/L	77	52 - 120
321-60-8	2-Fluorobiphenyl	51	40.3	ug/L	79	16 - 128
1718-51-0	Terphenyl-d14	51	34.8	ug/L	68	43 - 138
4165-62-2	Phenol-d5	102	25.5	ug/L	25	10 - 120
367-12-4	2-Fluorophenol	102	41.7	ug/L	41	10 - 120
118-79-6	2,4,6-Tribromophenol	102	76.5	ug/L	75	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093410	**MW-21**	Water	01/07/2009 08:00	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 23:34	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093411	**MW-22**	Water	01/07/2009 09:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 21:22	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	47	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	50	50.8	ug/L	102	77 - 127
2037-26-5	Toluene d8	50	56.5	ug/L	113	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	54.8	ug/L	110	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 18:47	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.156U	11.1	0.156	ug/L
208-96-8	Acenaphthylene	0.139U	11.1	0.139	ug/L
120-12-7	Anthracene	0.150U	11.1	0.150	ug/L
56-55-3	Benzo(a)anthracene	0.386U	11.1	0.386	ug/L
50-32-8	Benzo(a)pyrene	0.394U	11.1	0.394	ug/L
205-99-2	Benzo(b)fluoranthene	0.240U	11.1	0.240	ug/L
191-24-2	Benzo(g,h,i)perylene	0.179U	11.1	0.179	ug/L
207-08-9	Benzo(k)fluoranthene	0.139U	11.1	0.139	ug/L
218-01-9	Chrysene	0.458U	11.1	0.458	ug/L
53-70-3	Dibenz(a,h)anthracene	0.139U	11.1	0.139	ug/L
206-44-0	Fluoranthene	0.139U	11.1	0.139	ug/L
86-73-7	Fluorene	0.139U	11.1	0.139	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.139U	11.1	0.139	ug/L
91-20-3	Naphthalene	0.256U	11.1	0.256	ug/L
85-01-8	Phenanthrene	0.139U	11.1	0.139	ug/L
129-00-0	Pyrene	0.198U	11.1	0.198	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	55.6	43.5	ug/L	78	52 - 120
321-60-8	2-Fluorobiphenyl	55.6	44.3	ug/L	80	16 - 128
1718-51-0	Terphenyl-d14	55.6	40.4	ug/L	73	43 - 138
4165-62-2	Phenol-d5	111	34	ug/L	31	10 - 120
367-12-4	2-Fluorophenol	111	53.8	ug/L	48	10 - 120
118-79-6	2,4,6-Tribromophenol	111	89.1	ug/L	80	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093411	**MW-22**	Water	01/07/2009 09:00	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/13/2009 23:55	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093412	**MW-22D**	Water	01/07/2009 09:20	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 21:45	JCK	404213

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	46.8	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	50	52.6	ug/L	105	77 - 127
2037-26-5	Toluene d8	50	56.9	ug/L	114	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.5	ug/L	107	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 19:03	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.147U	10.5	0.147	ug/L
208-96-8	Acenaphthylene	0.132U	10.5	0.132	ug/L
120-12-7	Anthracene	0.142U	10.5	0.142	ug/L
56-55-3	Benzo(a)anthracene	0.366U	10.5	0.366	ug/L
50-32-8	Benzo(a)pyrene	0.373U	10.5	0.373	ug/L
205-99-2	Benzo(b)fluoranthene	0.227U	10.5	0.227	ug/L
191-24-2	Benzo(g,h,i)perylene	0.169U	10.5	0.169	ug/L
207-08-9	Benzo(k)fluoranthene	0.132U	10.5	0.132	ug/L
218-01-9	Chrysene	0.434U	10.5	0.434	ug/L
53-70-3	Dibenz(a,h)anthracene	0.132U	10.5	0.132	ug/L
206-44-0	Fluoranthene	0.132U	10.5	0.132	ug/L
86-73-7	Fluorene	0.132U	10.5	0.132	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.132U	10.5	0.132	ug/L
91-20-3	Naphthalene	0.242U	10.5	0.242	ug/L
85-01-8	Phenanthrene	0.132U	10.5	0.132	ug/L
129-00-0	Pyrene	0.187U	10.5	0.187	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	52.6	42.1	ug/L	80	52 - 120
321-60-8	2-Fluorobiphenyl	52.6	43	ug/L	82	16 - 128
1718-51-0	Terphenyl-d14	52.6	38.3	ug/L	73	43 - 138
4165-62-2	Phenol-d5	105	32.7	ug/L	31	10 - 120
367-12-4	2-Fluorophenol	105	52.2	ug/L	50	10 - 120
118-79-6	2,4,6-Tribromophenol	105	89.1	ug/L	85	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093412	**MW-22D**	Water	01/07/2009 09:20	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 00:16	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093413	**MW-24**	Water	01/07/2009 12:20	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 16:05	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.8	ug/L	86	78 - 130
1868-53-7	Dibromofluoromethane	50	50.1	ug/L	100	77 - 127
2037-26-5	Toluene d8	50	49.8	ug/L	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.2	ug/L	98	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 19:18	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	48	ug/L	93	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	46.7	ug/L	91	16 - 128
1718-51-0	Terphenyl-d14	51.5	39.5	ug/L	77	43 - 138
4165-62-2	Phenol-d5	103	31	ug/L	30	10 - 120
367-12-4	2-Fluorophenol	103	52.7	ug/L	51	10 - 120
118-79-6	2,4,6-Tribromophenol	103	99.6	ug/L	97	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093413	**MW-24**	Water	01/07/2009 12:20	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 00:37	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093414	**MW-27**	Water	01/07/2009 11:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 16:29	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.5	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	50	48.4	ug/L	97	77 - 127
2037-26-5	Toluene d8	50	49.9	ug/L	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.7	ug/L	99	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 19:33	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.143U	10.2	0.143	ug/L
208-96-8	Acenaphthylene	0.128U	10.2	0.128	ug/L
120-12-7	Anthracene	0.138U	10.2	0.138	ug/L
56-55-3	Benzo(a)anthracene	0.354U	10.2	0.354	ug/L
50-32-8	Benzo(a)pyrene	0.362U	10.2	0.362	ug/L
205-99-2	Benzo(b)fluoranthene	0.220U	10.2	0.220	ug/L
191-24-2	Benzo(g,h,i)perylene	0.164U	10.2	0.164	ug/L
207-08-9	Benzo(k)fluoranthene	0.128U	10.2	0.128	ug/L
218-01-9	Chrysene	0.421U	10.2	0.421	ug/L
53-70-3	Dibenz(a,h)anthracene	0.128U	10.2	0.128	ug/L
206-44-0	Fluoranthene	0.128U	10.2	0.128	ug/L
86-73-7	Fluorene	0.128U	10.2	0.128	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.128U	10.2	0.128	ug/L
91-20-3	Naphthalene	0.235U	10.2	0.235	ug/L
85-01-8	Phenanthrene	0.128U	10.2	0.128	ug/L
129-00-0	Pyrene	0.182U	10.2	0.182	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	40.9	ug/L	80	52 - 120
321-60-8	2-Fluorobiphenyl	51	40.9	ug/L	80	16 - 128
1718-51-0	Terphenyl-d14	51	36.7	ug/L	72	43 - 138
4165-62-2	Phenol-d5	102	27	ug/L	26	10 - 120
367-12-4	2-Fluorophenol	102	45.2	ug/L	44	10 - 120
118-79-6	2,4,6-Tribromophenol	102	86.9	ug/L	85	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093414	**MW-27**	Water	01/07/2009 11:00	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 00:58	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093415	**PW-28**	Water	01/07/2009 11:30	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 16:53	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.4	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	50	46.4	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	49.3	ug/L	99	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.9	ug/L	96	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 19:49	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	41.9	ug/L	81	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	41.8	ug/L	81	16 - 128
1718-51-0	Terphenyl-d14	51.5	36.9	ug/L	72	43 - 138
4165-62-2	Phenol-d5	103	33.2	ug/L	32	10 - 120
367-12-4	2-Fluorophenol	103	52.3	ug/L	51	10 - 120
118-79-6	2,4,6-Tribromophenol	103	82	ug/L	80	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093415	**PW-28**	Water	01/07/2009 11:30	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 01:20	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093416	**MW-29**	Water	01/07/2009 10:10	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 17:17	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.6	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	50	46.4	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	48.9	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.4	ug/L	97	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 20:04	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.144U	10.3	0.144	ug/L
208-96-8	Acenaphthylene	0.129U	10.3	0.129	ug/L
120-12-7	Anthracene	0.139U	10.3	0.139	ug/L
56-55-3	Benzo(a)anthracene	0.358U	10.3	0.358	ug/L
50-32-8	Benzo(a)pyrene	0.366U	10.3	0.366	ug/L
205-99-2	Benzo(b)fluoranthene	0.222U	10.3	0.222	ug/L
191-24-2	Benzo(g,h,i)perylene	0.166U	10.3	0.166	ug/L
207-08-9	Benzo(k)fluoranthene	0.129U	10.3	0.129	ug/L
218-01-9	Chrysene	0.425U	10.3	0.425	ug/L
53-70-3	Dibenz(a,h)anthracene	0.129U	10.3	0.129	ug/L
206-44-0	Fluoranthene	0.129U	10.3	0.129	ug/L
86-73-7	Fluorene	0.129U	10.3	0.129	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.129U	10.3	0.129	ug/L
91-20-3	Naphthalene	0.237U	10.3	0.237	ug/L
85-01-8	Phenanthrene	0.129U	10.3	0.129	ug/L
129-00-0	Pyrene	0.184U	10.3	0.184	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51.5	18.3	ug/L	36*	52 - 120
321-60-8	2-Fluorobiphenyl	51.5	17.8	ug/L	35	16 - 128
1718-51-0	Terphenyl-d14	51.5	16.7	ug/L	32*	43 - 138
4165-62-2	Phenol-d5	103	29.1	ug/L	28	10 - 120
367-12-4	2-Fluorophenol	103	40.7	ug/L	39	10 - 120
118-79-6	2,4,6-Tribromophenol	103	26.7	ug/L	26*	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093416	**MW-29**	Water	01/07/2009 10:10	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 01:41	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093417	**MW-30**	Water	01/07/2009 09:50	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 17:41	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.3	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	50	46.5	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	49.7	ug/L	99	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.3	ug/L	97	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 20:19	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.143U	10.2	0.143	ug/L
208-96-8	Acenaphthylene	0.128U	10.2	0.128	ug/L
120-12-7	Anthracene	0.138U	10.2	0.138	ug/L
56-55-3	Benzo(a)anthracene	0.354U	10.2	0.354	ug/L
50-32-8	Benzo(a)pyrene	0.362U	10.2	0.362	ug/L
205-99-2	Benzo(b)fluoranthene	0.220U	10.2	0.220	ug/L
191-24-2	Benzo(g,h,i)perylene	0.164U	10.2	0.164	ug/L
207-08-9	Benzo(k)fluoranthene	0.128U	10.2	0.128	ug/L
218-01-9	Chrysene	0.421U	10.2	0.421	ug/L
53-70-3	Dibenz(a,h)anthracene	0.128U	10.2	0.128	ug/L
206-44-0	Fluoranthene	0.128U	10.2	0.128	ug/L
86-73-7	Fluorene	0.128U	10.2	0.128	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.128U	10.2	0.128	ug/L
91-20-3	Naphthalene	0.235U	10.2	0.235	ug/L
85-01-8	Phenanthrene	0.128U	10.2	0.128	ug/L
129-00-0	Pyrene	0.182U	10.2	0.182	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	40.3	ug/L	79	52 - 120
321-60-8	2-Fluorobiphenyl	51	41.5	ug/L	81	16 - 128
1718-51-0	Terphenyl-d14	51	35.2	ug/L	69	43 - 138
4165-62-2	Phenol-d5	102	30.5	ug/L	30	10 - 120
367-12-4	2-Fluorophenol	102	48.8	ug/L	48	10 - 120
118-79-6	2,4,6-Tribromophenol	102	79.2	ug/L	78	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093417	**MW-30**	Water	01/07/2009 09:50	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 02:23	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093418	**PW-31**	Water	01/07/2009 14:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			200	01/11/2009 14:30	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	6510	200	13.0	ug/L
108-88-3	Toluene	11100	200	15.1	ug/L
100-41-4	Ethylbenzene	2020	200	13.0	ug/L
1330-20-7	Xylene (total)	9580	600	36.7	ug/L
91-20-3	Naphthalene	503J	1000	23.6	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	515	200	15.4	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	8950	ug/L	90	78 - 130
1868-53-7	Dibromofluoromethane	10000	9230	ug/L	92	77 - 127
2037-26-5	Toluene d8	10000	9810	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	9600	ug/L	96	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 20:34	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.141U	10.1	0.141	ug/L
208-96-8	Acenaphthylene	0.126U	10.1	0.126	ug/L
120-12-7	Anthracene	0.136U	10.1	0.136	ug/L
56-55-3	Benzo(a)anthracene	0.351U	10.1	0.351	ug/L
50-32-8	Benzo(a)pyrene	0.358U	10.1	0.358	ug/L
205-99-2	Benzo(b)fluoranthene	0.218U	10.1	0.218	ug/L
191-24-2	Benzo(g,h,i)perylene	0.163U	10.1	0.163	ug/L
207-08-9	Benzo(k)fluoranthene	0.126U	10.1	0.126	ug/L
218-01-9	Chrysene	0.416U	10.1	0.416	ug/L
53-70-3	Dibenz(a,h)anthracene	0.126U	10.1	0.126	ug/L
206-44-0	Fluoranthene	0.126U	10.1	0.126	ug/L
86-73-7	Fluorene	0.126U	10.1	0.126	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.126U	10.1	0.126	ug/L
85-01-8	Phenanthrene	0.126U	10.1	0.126	ug/L
129-00-0	Pyrene	0.180U	10.1	0.180	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	49.1	ug/L	97	52 - 120
321-60-8	2-Fluorobiphenyl	50.5	43.4	ug/L	86	16 - 128
1718-51-0	Terphenyl-d14	50.5	41.9	ug/L	83	43 - 138
4165-62-2	Phenol-d5	101	22.3	ug/L	22	10 - 120
367-12-4	2-Fluorophenol	101	62.2	ug/L	62	10 - 120
118-79-6	2,4,6-Tribromophenol	101	88.5	ug/L	88	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093418	**PW-31**	Water	01/07/2009 14:00	01/09/2009 09:45

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	5	01/14/2009 10:30	KCB	404398

CAS#	Parameter	Result	RDL	MDL	Units
91-20-3	**Naphthalene**	**507**	**50.5**	**1.16**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	50.5	53.1	ug/L	105	52 - 120
321-60-8	2-Fluorobiphenyl	50.5	56.9	ug/L	113	16 - 128
1718-51-0	Terphenyl-d14	50.5	51.5	ug/L	102	43 - 138
4165-62-2	Phenol-d5	101	26	ug/L	26	10 - 120
367-12-4	2-Fluorophenol	101	60.7	ug/L	60	10 - 120
118-79-6	2,4,6-Tribromophenol	101	86.4	ug/L	86	52 - 121

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 02:44	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	**1,2-Dibromoethane**	**1.34**	**0.010**	**0.00350**	**ug/L**

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093419	**MW-33**	Water	01/07/2009 08:30	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 18:04	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	Benzene	0.065U	1.00	0.065	ug/L
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	Naphthalene	0.118U	5.00	0.118	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	1.00	0.077	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.7	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	45.7	ug/L	91	77 - 127
2037-26-5	Toluene d8	50	49.5	ug/L	99	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.5	ug/L	97	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/13/2009 20:49	KCB	404322

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.156U	11.1	0.156	ug/L
208-96-8	Acenaphthylene	0.139U	11.1	0.139	ug/L
120-12-7	Anthracene	0.150U	11.1	0.150	ug/L
56-55-3	Benzo(a)anthracene	0.386U	11.1	0.386	ug/L
50-32-8	Benzo(a)pyrene	0.394U	11.1	0.394	ug/L
205-99-2	Benzo(b)fluoranthene	0.240U	11.1	0.240	ug/L
191-24-2	Benzo(g,h,i)perylene	0.179U	11.1	0.179	ug/L
207-08-9	Benzo(k)fluoranthene	0.139U	11.1	0.139	ug/L
218-01-9	Chrysene	0.458U	11.1	0.458	ug/L
53-70-3	Dibenz(a,h)anthracene	0.139U	11.1	0.139	ug/L
206-44-0	Fluoranthene	0.139U	11.1	0.139	ug/L
86-73-7	Fluorene	0.139U	11.1	0.139	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.139U	11.1	0.139	ug/L
91-20-3	**Naphthalene**	**9.70J**	**11.1**	**0.256**	**ug/L**
85-01-8	Phenanthrene	0.139U	11.1	0.139	ug/L
129-00-0	Pyrene	0.198U	11.1	0.198	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	55.6	48.4	ug/L	87	52 - 120
321-60-8	2-Fluorobiphenyl	55.6	47.5	ug/L	86	16 - 128
1718-51-0	Terphenyl-d14	55.6	43.2	ug/L	78	43 - 138
4165-62-2	Phenol-d5	111	34.9	ug/L	31	10 - 120
367-12-4	2-Fluorophenol	111	56.7	ug/L	51	10 - 120
118-79-6	2,4,6-Tribromophenol	111	96.9	ug/L	87	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093419	**MW-33**	Water	01/07/2009 08:30	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 03:05	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093420	**MW-15**	Water	01/08/2009 11:00	01/09/2009 09:45

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	01/11/2009 18:28	JCK	404218

CAS#	Parameter	Result	RDL	MDL	Units
71-43-2	**Benzene**	**81.7**	**1.00**	**0.065**	**ug/L**
108-88-3	Toluene	0.076U	1.00	0.076	ug/L
100-41-4	Ethylbenzene	0.065U	1.00	0.065	ug/L
1330-20-7	Xylene (total)	0.183U	3.00	0.183	ug/L
91-20-3	**Naphthalene**	**2.24J**	**5.00**	**0.118**	**ug/L**
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**55.6**	**1.00**	**0.077**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.2	ug/L	86	78 - 130
1868-53-7	Dibromofluoromethane	50	46.7	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	49.1	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.9	ug/L	98	71 - 127

SW-846 8270C

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 09:00	404211	3510C	1	01/14/2009 10:45	KCB	404398

CAS#	Parameter	Result	RDL	MDL	Units
83-32-9	Acenaphthene	0.143U	10.2	0.143	ug/L
208-96-8	Acenaphthylene	0.128U	10.2	0.128	ug/L
120-12-7	Anthracene	0.138U	10.2	0.138	ug/L
56-55-3	Benzo(a)anthracene	0.354U	10.2	0.354	ug/L
50-32-8	Benzo(a)pyrene	0.362U	10.2	0.362	ug/L
205-99-2	Benzo(b)fluoranthene	0.220U	10.2	0.220	ug/L
191-24-2	Benzo(g,h,i)perylene	0.164U	10.2	0.164	ug/L
207-08-9	Benzo(k)fluoranthene	0.128U	10.2	0.128	ug/L
218-01-9	Chrysene	0.421U	10.2	0.421	ug/L
53-70-3	Dibenz(a,h)anthracene	0.128U	10.2	0.128	ug/L
206-44-0	Fluoranthene	0.128U	10.2	0.128	ug/L
86-73-7	Fluorene	0.128U	10.2	0.128	ug/L
193-39-5	Indeno(1,2,3-cd)pyrene	0.128U	10.2	0.128	ug/L
91-20-3	**Naphthalene**	**1.45J**	**10.2**	**0.235**	**ug/L**
85-01-8	Phenanthrene	0.128U	10.2	0.128	ug/L
129-00-0	Pyrene	0.182U	10.2	0.182	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
4165-60-0	Nitrobenzene-d5	51	43.5	ug/L	85	52 - 120
321-60-8	2-Fluorobiphenyl	51	46.3	ug/L	91	16 - 128
1718-51-0	Terphenyl-d14	51	44.1	ug/L	86	43 - 138
4165-62-2	Phenol-d5	102	31.2	ug/L	31	10 - 120
367-12-4	2-Fluorophenol	102	50.9	ug/L	50	10 - 120
118-79-6	2,4,6-Tribromophenol	102	82.6	ug/L	81	52 - 121

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20901093420	**MW-15**	Water	01/08/2009 11:00	01/09/2009 09:45

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
01/12/2009 10:00	404228	SW-846 8011	1	01/14/2009 03:26	TLS	404383

CAS#	Parameter	Result	RDL	MDL	Units
106-93-4	1,2-Dibromoethane	0.00350U	0.010	0.00350	ug/L

GC/MS Volatiles Quality Control Summary

Analytical Batch	404202	Client ID	MB404202	LCS404202	LCSD404202
Prep Batch	N/A	GCAL ID	684662	684663	684664
		Sample Type	Method Blank	LCS	LCSD
		Analytical Date	01/10/2009 12:45	01/10/2009 11:15	01/10/2009 11:37
		Matrix	Water	Water	Water

SW-846 8260B		Units	ug/L	Spike Added	Result	Result	% R	Control Limits	RPD	% R	Result	% R	RPD	RPD Limit
107-06-2	1,2-Dichloroethane		0.090U	0.090	50.0	45.7	91	76 - 123			45.1	90	1	30
100-41-4	Ethylbenzene		0.065U	0.065	50.0	54.9	110	74 - 126			55.0	110	0.2	30
1634-04-4	tert-Butyl methyl ether (MTBE)		0.077U	0.077	50.0	49.9	100	76 - 122			50.3	101	0.8	30
1330-20-7	Xylene (total)		0.183U	0.183	150	163	109	76 - 123			162	108	0.6	30
91-20-3	Naphthalene		0.118U	0.118	50.0	37.6	75	64 - 127			40.4	81	7	35
71-43-2	Benzene		0.065U	0.065	50.0	52.3	105	78 - 121			54.1	108	3	20
108-88-3	Toluene		0.076U	0.076	50.0	57.9	116	78 - 121			54.6	109	6	20
Surrogate														
460-00-4	4-Bromofluorobenzene		48.7	97	50	50.8	102	78 - 130			48	96		
1868-53-7	Dibromofluoromethane		50.7	101	50	51.3	103	77 - 127			49.9	100		
2037-26-5	Toluene d8		57.6	115	50	57.7	115	76 - 134			55.4	111		
17060-07-0	1,2-Dichloroethane-d4		56.3	113	50	52.1	104	71 - 127			53.6	107		

Analytical Batch	404202	Client ID	142537	684055MS	684055MSD
Prep Batch	N/A	GCAL ID	20901085002	684675	684676
		Sample Type	SAMPLE	MS	MSD
		Analytical Date	01/10/2009 14:08	01/10/2009 14:31	01/10/2009 14:53
		Matrix	Water	Water	Water

SW-846 8260B		Units	ug/L	Spike Added	Result	Result	% R	Control Limits	RPD	% R	Result	% R	RPD	RPD Limit
107-06-2	1,2-Dichloroethane		0.00	44.9	25000	24500	98	76 - 123			23200	93	5	30
100-41-4	Ethylbenzene		8990	32.6	25000	30800	87	74 - 126			33700	99	9	30
1634-04-4	tert-Butyl methyl ether (MTBE)		0.00	38.5	25000	25900	104	76 - 122			25100	100	3	30
1330-20-7	Xylene (total)		70200	91.7	75000	108000	50*	76 - 123			115000	60*	6	30
91-20-3	Naphthalene		3660	59.1	25000	21500	71	64 - 127			20500	67	5	30
71-43-2	Benzene		4580	32.5	25000	30400	103	78 - 121			31600	108	4	30
108-88-3	Toluene		88900	37.8	25000	84900	-20*	78 - 121			91100	9*	7	30
Surrogate														
460-00-4	4-Bromofluorobenzene				25000	24600	98	78 - 130			25600	102		
1868-53-7	Dibromofluoromethane				25000	25900	104	77 - 127			26100	104		
2037-26-5	Toluene d8				25000	28100	112	76 - 134			29600	118		
17060-07-0	1,2-Dichloroethane-d4				25000	28400	114	71 - 127			27500	110		

GC/MS Volatiles Quality Control Summary

Analytical Batch	404213	Client ID	MB404213			LCS404213			LCSD404213			
Prep Batch	N/A	GCAL ID	684741			684742			684771			
		Sample Type	Method Blank			LCS			LCSD			
		Analytical Date	01/11/2009 12:31			01/11/2009 11:23			01/11/2009 14:12			
		Matrix	Water			Water			Water			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	0.090U	0.090	50.0	45.4	91	76 - 123	46.0	92	1	30	
100-41-4	Ethylbenzene	0.065U	0.065	50.0	57.2	114	74 - 126	57.9	116	1	30	
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	50.0	50.4	101	76 - 122	47.9	96	5	30	
1330-20-7	Xylene (total)	0.183U	0.183	150	169	113	76 - 123	169	113	0	30	
91-20-3	Naphthalene	0.118U	0.118	50.0	38.0	76	64 - 127	38.5	77	1	35	
71-43-2	Benzene	0.065U	0.065	50.0	53.5	107	78 - 121	52.6	105	2	20	
108-88-3	Toluene	0.076U	0.076	50.0	59.5	119	78 - 121	58.7	117	1	20	
Surrogate												
460-00-4	4-Bromofluorobenzene	46.6	93	50	50.6	101	78 - 130	52.1	104			
1868-53-7	Dibromofluoromethane	52.7	105	50	49.5	99	77 - 127	50.7	101			
2037-26-5	Toluene d8	55.3	111	50	56	112	76 - 134	58.3	117			
17060-07-0	1,2-Dichloroethane-d4	51.8	104	50	50.1	100	71 - 127	53.2	106			

Analytical Batch	404213	Client ID	VB2695			684518MS			684518MSD			
Prep Batch	N/A	GCAL ID	20901095601			684772			684773			
		Sample Type	SAMPLE			MS			MSD			
		Analytical Date	01/11/2009 13:05			01/11/2009 13:27			01/11/2009 13:50			
		Matrix	Solid			Solid			Solid			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	0.00	3.59	2000	1810	91	73 - 128	1800	90	0.6	30	
71-43-2	Benzene	0.00	2.60	2000	2120	106	78 - 120	2130	107	0.5	21	
Surrogate												
460-00-4	4-Bromofluorobenzene			2000	2010	101	62 - 127	1990	100			
1868-53-7	Dibromofluoromethane			2000	2040	102	65 - 130	2080	104			
2037-26-5	Toluene d8			2000	2260	113	71 - 132	2230	112			
17060-07-0	1,2-Dichloroethane-d4			2000	2090	105	62 - 125	2090	105			

GC/MS Volatiles Quality Control Summary

Analytical Batch	404218	Client ID	MB404218	LCS404218	LCSD404218
Prep Batch	N/A	GCAL ID	684755	684756	684757
		Sample Type	Method Blank	LCS	LCSD
		Analytical Date	01/11/2009 12:48	01/11/2009 11:21	01/11/2009 12:01
		Matrix	Water	Water	Water

SW-846 8260B		Units	ug/L	Spike Added	Result	Result	% R	Control Limits	RPD	% R	Result	% R	RPD	RPD Limit
107-06-2	1,2-Dichloroethane		0.090U	0.090	50.0	47.7	95	76 - 123			47.0	94	1	30
100-41-4	Ethylbenzene		0.065U	0.065	50.0	49.8	100	74 - 126			48.3	97	3	30
1634-04-4	tert-Butyl methyl ether (MTBE)		0.077U	0.077	50.0	48.7	97	76 - 122			46.9	94	4	30
1330-20-7	Xylene (total)		0.183U	0.183	150	156	104	76 - 123			149	99	5	30
91-20-3	Naphthalene		0.118U	0.118	50.0	54.6	109	64 - 127			54.4	109	0.4	35
71-43-2	Benzene		0.065U	0.065	50.0	48.6	97	78 - 121			47.0	94	3	20
108-88-3	Toluene		0.076U	0.076	50.0	49.9	100	78 - 121			49.0	98	2	20
Surrogate														
460-00-4	4-Bromofluorobenzene		43.9	88	50	45.5	91	78 - 130			45.6	91		
1868-53-7	Dibromofluoromethane		46.1	92	50	50.4	101	77 - 127			50.4	101		
2037-26-5	Toluene d8		50.1	100	50	49.3	99	76 - 134			50	100		
17060-07-0	1,2-Dichloroethane-d4		47.1	94	50	49.5	99	71 - 127			50.7	101		

Analytical Batch	404218	Client ID	PW-31	684413MS	684413MSD
Prep Batch	N/A	GCAL ID	20901093418	684767	684768
		Sample Type	SAMPLE	MS	MSD
		Analytical Date	01/11/2009 14:30	01/11/2009 14:54	01/11/2009 15:18
		Matrix	Water	Water	Water

SW-846 8260B		Units	ug/L	Spike Added	Result	Result	% R	Control Limits	RPD	% R	Result	% R	RPD	RPD Limit
107-06-2	1,2-Dichloroethane		0.00	18.0	10000	9190	92	76 - 123			9260	93	0.8	30
100-41-4	Ethylbenzene		2020	13.0	10000	11600	96	74 - 126			12100	101	4	30
1634-04-4	tert-Butyl methyl ether (MTBE)		515	15.4	10000	9870	94	76 - 122			10000	95	1	30
1330-20-7	Xylene (total)		9580	36.7	30000	39500	100	76 - 123			40900	104	3	30
91-20-3	Naphthalene		503	23.6	10000	11600	111	64 - 127			11500	110	0.9	30
71-43-2	Benzene		6510	13.0	10000	15300	88	78 - 121			16000	95	4	30
108-88-3	Toluene		11100	15.1	10000	19600	85	78 - 121			20000	89	2	30
Surrogate														
460-00-4	4-Bromofluorobenzene		8950	90	10000	8990	90	78 - 130			9130	91		
1868-53-7	Dibromofluoromethane		9230	92	10000	9750	98	77 - 127			9570	96		
2037-26-5	Toluene d8		9810	98	10000	9910	99	76 - 134			9810	98		
17060-07-0	1,2-Dichloroethane-d4		9600	96	10000	9870	99	71 - 127			10000	100		

GC/MS Semi-Volatiles Quality Control Summary

Analytical Batch	404322	**Client ID**	MB404211	LCS404211	LCSD404211
Prep Batch	404211	**GCAL ID**	684731	684732	684733
Prep Method	3510C	**Sample Type**	Method Blank	LCS	LCSD
		Prep Date	01/12/2009 09:00	01/12/2009 09:00	01/12/2009 09:00
		Analytical Date	01/13/2009 15:13	01/13/2009 15:59	01/13/2009 15:44
		Matrix	Water	Water	Water

SW-846 8270C		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
208-96-8	Acenaphthylene	0.125U	0.125	100	103	103	55 - 120	100	100	3	50
120-12-7	Anthracene	0.135U	0.135	100	110	110	58 - 120	107	107	3	50
56-55-3	Benzo(a)anthracene	0.347U	0.347	100	94.0	94	56 - 120	93.8	94	0.2	50
205-99-2	Benzo(b)fluoranthene	0.216U	0.216	100	88.9	89	55 - 120	85.9	86	3	50
207-08-9	Benzo(k)fluoranthene	0.125U	0.125	100	91.6	92	49 - 121	91.6	92	0	50
191-24-2	Benzo(g,h,i)perylene	0.161U	0.161	100	116	116	44 - 132	113	113	3	50
50-32-8	Benzo(a)pyrene	0.355U	0.355	100	102	102	56 - 120	99.9	100	2	50
218-01-9	Chrysene	0.412U	0.412	98.0	92.6	94	58 - 120	90.9	93	2	50
53-70-3	Dibenz(a,h)anthracene	0.125U	0.125	100	107	107	50 - 138	104	104	3	50
206-44-0	Fluoranthene	0.125U	0.125	100	120	120	55 - 120	118	118	2	50
86-73-7	Fluorene	0.125U	0.125	100	96.7	97	54 - 120	96.0	96	0.7	50
193-39-5	Indeno(1,2,3-cd)pyrene	0.125U	0.125	100	112	112	43 - 133	116	116	4	50
91-20-3	Naphthalene	0.230U	0.230	100	84.7	85	44 - 120	85.4	85	0.8	50
85-01-8	Phenanthrene	0.125U	0.125	100	105	105	58 - 120	100	100	5	50
83-32-9	Acenaphthene	0.140U	0.140	100	95.7	96	52 - 120	95.1	95	0.6	32
129-00-0	Pyrene	0.178U	0.178	100	89.0	89	54 - 120	88.4	88	0.7	30
Surrogate											
4165-60-0	Nitrobenzene-d5	42.4	85	50	43.1	86	52 - 120	42.4	85		
321-60-8	2-Fluorobiphenyl	41.8	84	50	43.1	86	16 - 128	41.5	83		
1718-51-0	Terphenyl-d14	36.9	74	50	38.4	77	43 - 138	37.7	75		
4165-62-2	Phenol-d5	27.4	27	100	32.3	32	10 - 120	30.9	31		
367-12-4	2-Fluorophenol	48.3	48	100	48.7	49	10 - 120	45.8	46		
118-79-6	2,4,6-Tribromophenol	83.8	84	100	87.5	88	52 - 121	83.3	83		

General Chromatography Quality Control Summary

Analytical Batch	404383	**Client ID**	MB404228			LCS404228			LCSD404228		
Prep Batch	404228	**GCAL ID**	684811			684812			684813		
Prep Method	SW-846 8011	**Sample Type**	Method Blank			LCS			LCSD		
		Prep Date	01/12/2009 10:00			01/12/2009 10:00			01/12/2009 10:00		
		Analytical Date	01/13/2009 19:42			01/13/2009 20:03			01/13/2009 20:24		
		Matrix	Water			Water			Water		
SW-846 8011		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
106-93-4	1,2-Dibromoethane	0.00350U	0.00350	1.06	0.777	73	62 - 140	0.712	71	9	40

Access/4565/209010934/1-16-9

Access Analytical - Chain of Custody Record

Project Submission # 7305-8013 **PO #** _____ **Laboratory ID:** _____

Company Name: Terracon

Report To: Melissa Roberts

Address: 521 Clemson Rd

City: Columbia State: SC Zip: 29229

Phone: 803-741-9000 Fax:

Email:

Project Name: SC-57Q

Sampled By (print): William Walker

Preservative: (*see codes below)

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

ACCESS ANALYTICAL, INC.

7478 Carlisle Street
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	↓ REQUESTED LAB ANALYSIS: ↓	B, N, MTBE	EDB	PAH					NOTES / COMMENTS
MW-4R	1/8/09	930	L	1		1							1
MW-6	1/8/09	1000		5		2	2	1					5
MW-8R	1/8/09	920											6
MW-10R	1/8/09	830											7
MW-12R	1/7/09	1030											8
MW-16	1/8/09	800		1		1							2
MW-19R	1/7/09	1510		5		2	2	1					9
MW-21	1/7/09	800											10
MW-22	1/7/09	900											11
MW-22D	1/7/09	920											12

Turnaround Time:

✓ Std. (5-7 Bus. days)

RUSH*

...ired: _____

...esults

...iness

(...on date required)

Samples Recd. on Ice?

✓ Yes

__ No

Project Location:

✓ SC

__ NC

__ Other _____ (specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	1/8/09	1350	[signature]
[signature]	1/8/09	1700	FEDEX
Fedex	1-9-9	945	[signature]

Access Analytical, Inc.
See Reverse for Terms and Conditions

3.1

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

Access Analytical - Chain of Custody Record

Access/4565/20090109341/1-16-9

Project Submission # 7305-8013 **PO #** _____ **Laboratory ID:** _____

Company Name: Terracon

Report To: Melissa Roberts

Address: 521 Clemson Robert

City: Columbia State: SC Zip: 29229

Phone: 803-741-9000 Fax:

Email:

Project Name: SC-576

Sampled By (print): William Walker

Preservative: (*see codes below)

REQUESTED LAB ANALYSIS: ↓

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	B, N, MTBE	EDB	PAH					NOTES / COMMENTS
MW-24	1/7/09	1220	L	5	2	2	1					13
MW-25	1/7/09	1610	L	4	2	2						3
MW-26	1/7/09	1200		4	2	2						4
MW-27	1/7/09	1100		5	2	2	1					14
PW-28	1/7/09	1130										15
MW-29	1/7/09	1010										16
MW-30	1/7/09	950										17
PW-31	1/7/09	1400										18
MW-33	1/7/09	830										19
MW-15	1/8/09	1100										20

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

ACCESS ANALYTICAL, INC.

Phone: (803) 781-4243
7478 Carlisle Street Fax: 781-4303
Irmo, SC 29063 Toll Free (888) 315-4243
www.accessanalyticalinc.com

Turnaround Time:

✓ Std. (5-7 Bus. days)

___RUSH*

*Date Required:_____

(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?

✓ Yes

___No

Project Location:

✓ SC

___NC

___Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
Melissa Roberts	1/8/09	1350	April G
April P. G	1/8/09	1700	FEDEX
Fedex	1-9-9	945	MC

Access Analytical, Inc.

See Reverse for Terms and Conditions

3 4

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

APPENDIX C

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone	4. Waste Tracking Number
		800-535-5053	001545

GENERATOR

5. Generator's Name and Mailing Address SC516

201 N Mine St. McCormick SC 29835

Generator's Phone: 803-741-9000

Generator's Site Address (if different than mailing address)

TERRACON # 7305-8013

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC. — 877-682-0234 — U.S. EPA ID Number: SCR000768048

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address: DIVERSIFIED RECYCLING

132 Gardens Terrace West Columbia SC 29172

U.S. EPA ID Number: SCR000768127

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON RCRA NON Regulated Liquid	01	TT	110	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Ronald W. Norris — Signature — Month 1 Day 23 Year 07

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: JAmes Smith — Signature — Month 1 Day 23 Year 07

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name — Signature — Month — Day — Year

D H E C
PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

SEP 30 2009

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

Re: **AFVR Directive**
One Stop, 201 N Mine St, McCormick, SC
UST Permit #**06443**; CA#**37056**
Release reported December 13, 1989
Monitoring Report received February 9, 2009
McCormick County

Dear Mr. Janson:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the file and the next necessary scope of work is to conduct four (4) Aggressive Fluid/Vapor Recovery (AFVR) events to remove chemicals of concern. These events should be performed first on MW1/MW2/MW5, second on MW4/MW4R, third on MW32, and last on MW20/MW20R. The four events should be performed for 12 hours each and should be spaced such that the monthly 1,000-pound air emission limit is not exceeded.

Cost Agreement # 37056 has been approved in the amount shown on the enclosed cost agreement form for the aforementioned scope of work. The AFVR activities may proceed immediately upon receipt of this letter. The AFVR Report submitted at the completion of these activities should include the following:

- A narrative portion documenting the AFVR events noting site conditions, the name of the AFVR contractor, field personnel, date, time the AFVR events started and ended, ambient air temperature, and general weather conditions during the AFVR events.
- A brief description of the completed work scope and any relevant descriptions pertaining to the data tables.
- A table summarizing the airflow (in CFM) and volatile air emissions concentrations collected from the stack of the truck every thirty minutes through the duration of the events. The table shall also document which well(s) were being recovered from during that time interval.
- A table summarizing the magnehelic gauge measurements from all applicable wells on a thirty-minute time interval.
- The total volume of water recovered (gallons).
- The total volume of free phase product recovered (typically measured with a product/water interface device inserted into the top of the tanker at the completion of the event and then converted to an approximate volume).
- The total weight of petroleum removed as vapor. This is calculated based on the airflow rate and the concentration of vapor.
- A table documenting the free product thickness in each well before and after the recovery events.
- A scaled base map depicting the location of the extraction wells and the surrounding wells equipped with magnehelic gauges.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

16tcl

UST DOCKET

Magnehelic gauges must be installed on the extraction wells and monitoring wells immediately surrounding the extraction wells. The AFVR should be completed by establishing a vacuum on the subsurface through the existing monitoring wells. The unit must be capable of providing a minimum airflow of 250 cubic feet per minute (CPM) at 25 inches Mercury vacuum. An airtight seal must be established on the top of each extraction well. Drop tubes inserted in the well(s) should have an inside diameter of at least one (1) inch and should initially be installed six inches below the bottom of the product or the top of the well screen whichever is deeper. The drop tubes should be lowered deeper in the well only if the well exhibits slow recovery (repeatedly goes dry) or if it is deemed necessary to establish a steeper hydraulic gradient to enhance free product migration toward the well. The goal is to maximize the recovery of free product and petroleum vapors in the capillary fringe and minimize the recovery of ground water.

Terracon Consultants can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 150 days from the date of this letter. Interim invoices may be submitted for this scope of work. If the invoice is not submitted within 180 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the UST Division is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the UST Division for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum impacted groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report. If the COC concentrations, based on laboratory analysis, are below Risk Based Screening Levels (RBSLs), please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence or inquiries regarding this project, please reference **UST Permit #06443 and CA#37056**. If you have any questions, please feel free to contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or email at koonjt@dhec.sc.gov.

Sincerely,

Justin Koon, EIT
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Cost Agreement

cc: Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229 (w/ enc)
Technical File (w/ enc)

Approved Cost Agreement 37056

Facility: 06443 ONE STOP
KOONJT
PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		A	EQUIPMENT	4.0000	550.00	2,200.00
		B	PERSONNEL	4.0000	275.00	1,100.00
17 DISPOSAL						
		A2	WASTEWATER - PUMPING TEST	5,000.0000	0.60	3,000.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PCT	PERCENT	0.1500	23,244.00	3,486.60
23 EFR						
		A	8 HOUR EVENT	4.0000	3,000.00	12,000.00
		B	ADDITIONAL HOUR	16.0000	204.00	3,264.00
		C	OFF GAS TREATMENT	48.0000	35.00	1,680.00
					Total Amount	26,730.60

D H E C

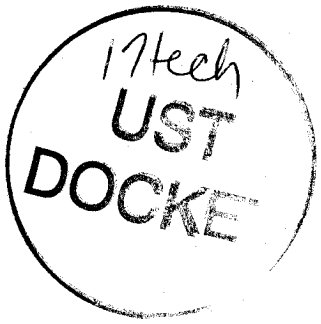
PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

OCT 13 2009

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168



Re: **Monitoring Well Installation Addendum**
One Stop, 201 N Mine St, McCormick, SC
UST Permit #**06443**; CA#**37056-Addendum**
Release reported December 13, 1989
Monitoring Report received February 9, 2009
McCormick County

Dear Mr. Janson:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the file and determined that the plume needs to be defined to the northwest of MW-20R. The installation of two (2) monitoring wells is required at the location designated on the attached site map. One (1) monitoring well should be a shallow well; and, the other a deep well.

An addendum for Cost Agreement # **37056** has been approved in the amount shown on the enclosed cost agreement form for the aforementioned scope of work. The installation of the monitoring wells may proceed immediately upon receipt of this letter. The AFVR Report required for CA#37056 should also contain the following information:

- Boring logs and 1903 forms for the well installation.

Terracon Consultants can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Interim invoices may be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the UST Division is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the UST Division for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum impacted groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report. If the COC concentrations, based on laboratory analysis, are below Risk Based Screening Levels (RBSLs), please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence or inquiries regarding this project, please reference **UST Permit #06443 and CA#37056**. If you have any questions, please feel free to contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or email at koonjt@dhec.sc.gov.

Sincerely,

Justin Koon, EIT
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Cost Agreement
Site Map (Proposed Locations of New Monitoring Wells)
Monitoring Well Approval

cc: Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229 (w/ enc)
Technical File (w/ enc)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Approval

Approval is hereby granted to: Terracon
(On behalf of): Mr. Janson
Facility: One Stop, 201 N Mine St, McCormick, SC
UST Permit Number: 06443
County: McCormick

This approval is for the installation of two (2) groundwater monitoring wells. The monitoring wells are to be installed in the approved location. Monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.
2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.
3. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted to the Department within 30 days after well completion or abandonment unless another schedule has been approved by the Department. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f
4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Department within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.
5. If any of the information provided to the Department changes, notification to Justin Koon (tel: (803) 896-6649 or e-mail: koonjt@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.
6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.
7. Departmental approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issuance: **October 6, 2009** **Approval #:** **UMW-23195**

Justin Koon, EIT
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

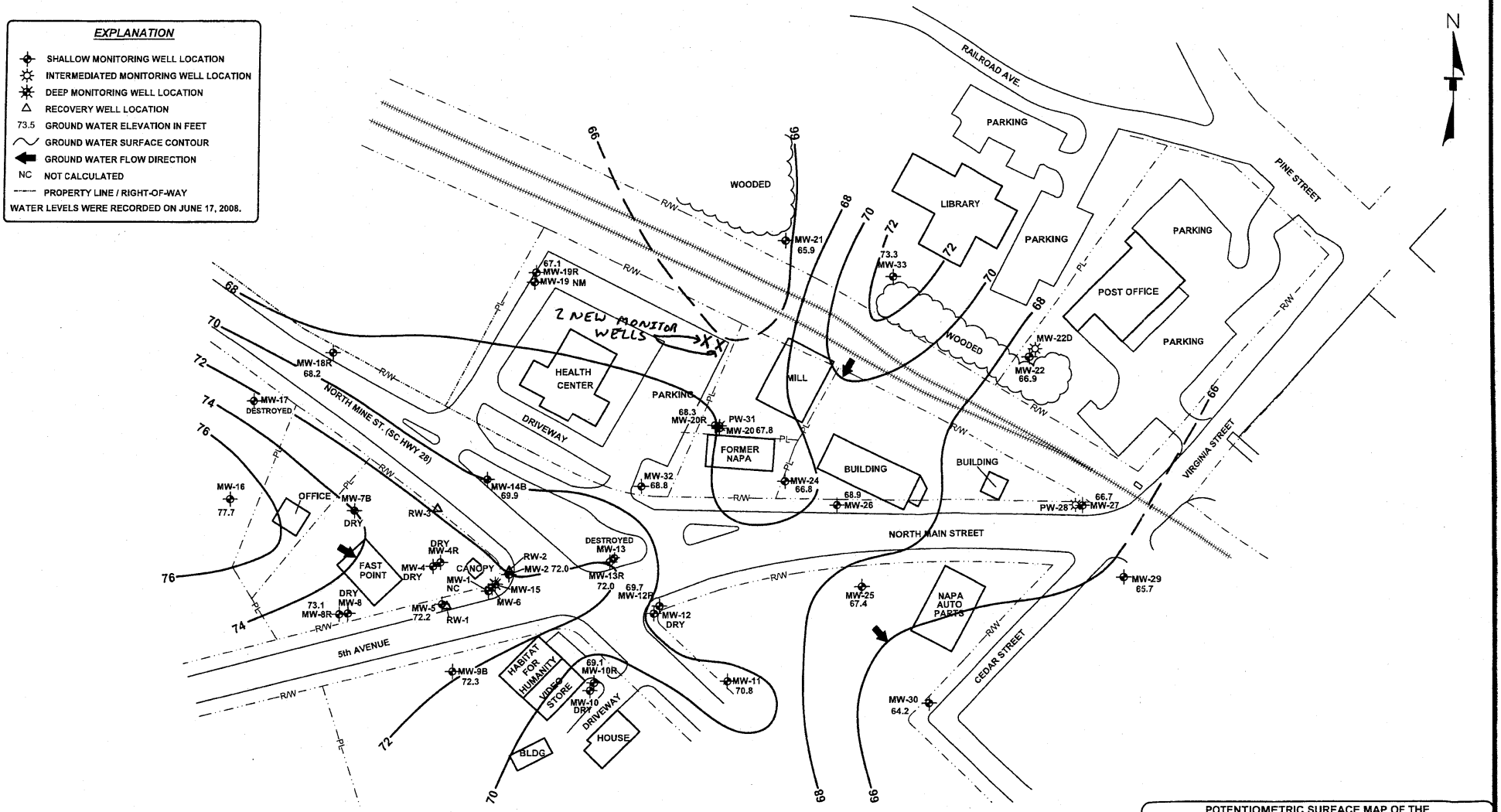
Approved Cost Agreement 37056

Facility: 06443 ONE STOP

KOONJT

PO Number: 784600

Task / Description Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB				
	A EQUIPMENT	5.0000	575.00	2,875.00
	B PERSONNEL	5.0000	290.00	1,450.00
09 WELL INSTALLATION				
	B WATER TABLE (DRILLED)	50.0000	38.00	1,900.00
	C TELESCOPING	60.0000	58.00	3,480.00
16 SUBSEQUENT SURVEY				
	SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL				
	A2 WASTEWATER - PUMPING TEST	5,000.0000	0.60	3,000.00
	C SOIL (TREATMENT/DISPOSAL)	5.0000	50.00	250.00
19 RPT/PROJECT MNGT & COORDINATIO				
	PCT PERCENT	0.1500	30,159.00	4,523.85
23 EFR				
	A 8 HOUR EVENT	4.0000	3,000.00	12,000.00
	B ADDITIONAL HOUR	16.0000	204.00	3,264.00
	C OFF GAS TREATMENT	48.0000	35.00	1,680.00
		Total Amount		34,682.85



NOTES:
1) WATER LEVEL MEASURED BY TERRACON PERSONNEL ON JUNE 17, 2008.
2) A POTENTIOMETRIC SURFACE ELEVATION WAS NOT CALCULATED FOR MW-1 DUE TO THE SIGNIFICANT THICKNESS (>3.0 ft) OF FREE PRODUCT IN THIS WELL.

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GRAPHIC SCALE
100 0 100
(FEET)

POTENTIOMETRIC SURFACE MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER FORMER SC-576

MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr: MDR	Terracon	Project No.	73058013
Designed By: MDR	521 Clemson Road Columbia, South Carolina 29229	Scale:	1 IN = 100 FT
Checked By: PMH		Date:	7-8-08
Approved By: CRC		Drawn By:	PTK
File Name: \73058013.dwg		Figure No.	3

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY AND MONITORING WELL INSTALLATION

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

Prepared for:

South Carolina Department of Health and Environmental Control

And

Crown Central LLC

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

February 3, 2010
Terracon Project No. 73058013

Terracon

February 3, 2010

Mr. Justin Koon
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Aggressive Fluid/Vapor Recovery and Monitoring Well Installation***
One Stop (Former SC-576)
201 N. Mine Street, McCormick, South Carolina
UST Permit # 06443; CA # 37056-Addendum
Terracon Project No. 73058013

Dear Mr. Koon:

On behalf of Crown Central LLC, **Terracon Consultants, Inc** is pleased to submit this report of Aggressive Fluid/Vapor Recovery and Monitoring Well Installation for the One Stop (former SC-576) facility located at 201 North Mine Street in McCormick, South Carolina. This report summarizes the five Aggressive Fluid Vapor Recovery (AFVR) events, well installation activities, and our findings, conclusions, and recommendations.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.
UCC No. 246

Regan W. Norris
Staff Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist

Attachment

cc: Jim Janson / Crown Central LLC

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY AND MONITORING WELL INSTALLATION

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

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1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed four Aggressive Fluid Vapor Recovery (AFVR) events at the One Stop (former SC-576) facility, 201 N. Mine Street, McCormick, South Carolina. This work was performed in accordance with SCDHEC Cost Proposal No. 37056 and 37056-Addendum and the SUPERB Allowable Costs document dated December 12, 2007. The purpose of the AFVR events was to extract multiple phase (vapor, dissolved, and free phase) petroleum hydrocarbon compounds from the unsaturated zone, capillary fringe, and the shallow aquifer following a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout and surrounding well network is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Seven AVFR events were performed at this site from December 2007 to October 2008 to remove free-phase product from the subsurface. A total of approximately 5,400 pounds of volatile organic compounds (VOCs) were removed from the subsurface during these events.

In October the SCDHEC requested additional AFVR events be performed at the site along with the installation of downgradient shallow and deep monitoring well pair north of monitoring well MW-20R. This report includes a summary of the field methods utilized along with the ground water elevation measurements, field analytical results, and our conclusions and recommendations.

2.0 AGGRESSIVE FLUID VAPOR RECOVERY

Four AFVR events were conducted by Terracon from October 19-22, 2009. AFVR is a proven remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (vapor, dissolved, and free phase) VOCs from the unsaturated zone, capillary fringe, and the shallow aquifer at the site. Figure 2 is a site map showing AFVR and monitoring well locations referenced in the following discussion.

The AFVR was performed for 12 hours for each event using trailer-mounted dual-phase extraction equipment, equipped with a Dekker Vmax 10 Hp oil-sealed liquid ring vacuum pump system. System readings were recorded at 30-minute intervals for off-gas concentrations, flow measurements, and vacuum pressure throughout each event. Off-gas concentrations were recorded with a Bacharach TLV Sniffer, and the off-gas velocity was measured using an anemometer at the pump exhaust. The concentrations were recorded on Field Data Sheet, included Appendix A.

Off-gases were treated prior to air discharge using three activated carbon canisters installed in series at the system exhaust. VOC concentrations were measured at both the system pump (prior to off gas treatment) and after the canisters and recorded on separate log sheets (Appendix A). Offgas concentrations were calculated and totaled during the event to ensure compliance within the total allowable air emission limit of 1,000 pounds per month.

Vacuum pressures were monitored at each wellhead during the events, and were adjusted to optimize the flow to the system. One-inch diameter PVC stinger tubes were set approximately six-inches into the free product/water table interface, and were adjusted according to water level changes during the event to minimize water production and maximize product recovery and contaminant mass removal from the vadose zone/water table interface.

Differential pressures (vacuum) measurements were recorded with a magnehelic gauge at monitoring wells in the vicinity of the extracted wells to determine the radius of influence of the vacuum at each extracted well. The measurements were recorded on Field Data Sheets, included Appendix A.

Depth to product/ground water, and were gauged in the extraction well at the beginning and the end of each AFVR event. Free product thicknesses are recorded on Field Data sheets, included Appendix A. Historical free product thicknesses are presented as Table 1.

Extracted ground water generated for the AVFR events were disposed by Advanced Environmental Options, Spartanburg, South Carolina. The disposal manifests for the extracted ground water are included in Appendix C.

A summary of the AFVR events is provided in the following table:

Event #	Date	Extraction Points	Depth to Water (ft)	Pre-AFVR FP thickness (ft)	Post-AFVR FP thickness (ft)	VOCs Recovered/ Emitted (lbs)
8	10/19/09	MW-1 MW-2 MW-5	28.23 28.44 29.77	-- 1.73 3.15	-- 0.72 --	709 / 110
9	10/20/09	MW-4 MW-4R	Dry 29.86	-- --	-- --	950 / 145
10	10/21/09	MW-20 MW-20R	29.31 28.71	0.46 0.05	-- --	554 / 152
11	10/22/09	MW-32	27.62	0.78	--	570 / 62
TOTAL						**2,783 / 469**

Notes:

1) A total of 1,505 gallons of ground water was produced for the 4 events.

Inspection of the data collected during extraction indicates total VOC removal ranged from 2 to 20 pounds per hour (lbs/hr) throughout the event. Approximately 510 gallons (2,783 pounds) of free product were removed from the subsurface for the four events. After offgas treatment, a total of 469 pounds of VOCs emitted to the atmosphere. The radius of influence as measured at 40 feet, 75 feet, and 90 feet for events 8 through 11, respectively. No influence was observed for event #11 (extraction well MW-32), as the closest observation well was located 90 feet from the extracted well.

Inspection of the historical free product thickness data indicates the AFVR has removed approximately two to three of product from extraction wells MW-1 (> 3 feet), MW-4 (2 feet), and MW-32 (2 feet), based on thicknesses recorded just prior to the AVFR event. However, product levels were recorded at thicknesses similar to the last AVFR event in extraction wells MW-2, MW-20 and MW-20R, and has increased approximately three feet in well MW-5. Additionally, free product is consistently detected in monitoring wells MW-13 and MW-14 (not used as extraction wells), at thicknesses of 0.5 and 0.2 feet, respectively.

3.0 MONITORING WELL INSTALLATION

The scope of work at the site included installation of a shallow/deep monitoring well pair MW-34/34D, located downgradient from monitoring well MW-20R. All drilling and well installation was performed by a South Carolina Certified Well Driller per the South Carolina Well Standards

R.61-71. The geologist logs for the borings and water well records (SCDHEC 1903 form), as compiled by the certified driller, are included in Appendix B.

Monitoring well MW-34 was installed as a single-cased shallow well using 2-inch schedule 40 PVC casing set to a depth of 34 feet, with 15 feet of 0.010-inch slotted screen. The boring for the deep well MW-34D was drilled with 4.25-inch ID diameter hollow stem augers to set and grout a five-inch diameter PVC surface casing to a depth of 50 feet. Four-inch borings were later drilled inside the surface casing by mud rotary methods to a depth 62 feet, to set five-foot screen and casing to 60.7 feet.

An appropriately graded sand filter pack was placed within the annulus opposite the well screens approximately two feet above the top of the screen. A minimum one-foot bentonite pellet layer was placed above the sand filter pack and hydrated. The remaining annulus was grouted to land surface with cement grout. The wells were completed below-grade within steel protective manhole covers, and a 2x2 foot concrete pad was constructed around each well. Well construction details are included on the Geologist Logs and on Table 1.

After installation, the well was developed by bailing or pumping until the pH and specific conductivity of the water had stabilized and the wells were producing relatively clear water or the well ran dry. Soil cuttings generated during well drilling and installation were collected in 55-gallon drums and disposed by Diversified Recycling, West Columbia, South Carolina. The disposal manifest is included in Appendix C.

The top of casing (TOC) elevations and well locations were surveyed by Terracon personnel, referenced to monitoring wells MW-19 and MW-20. The TOC elevations are included on Table 1.

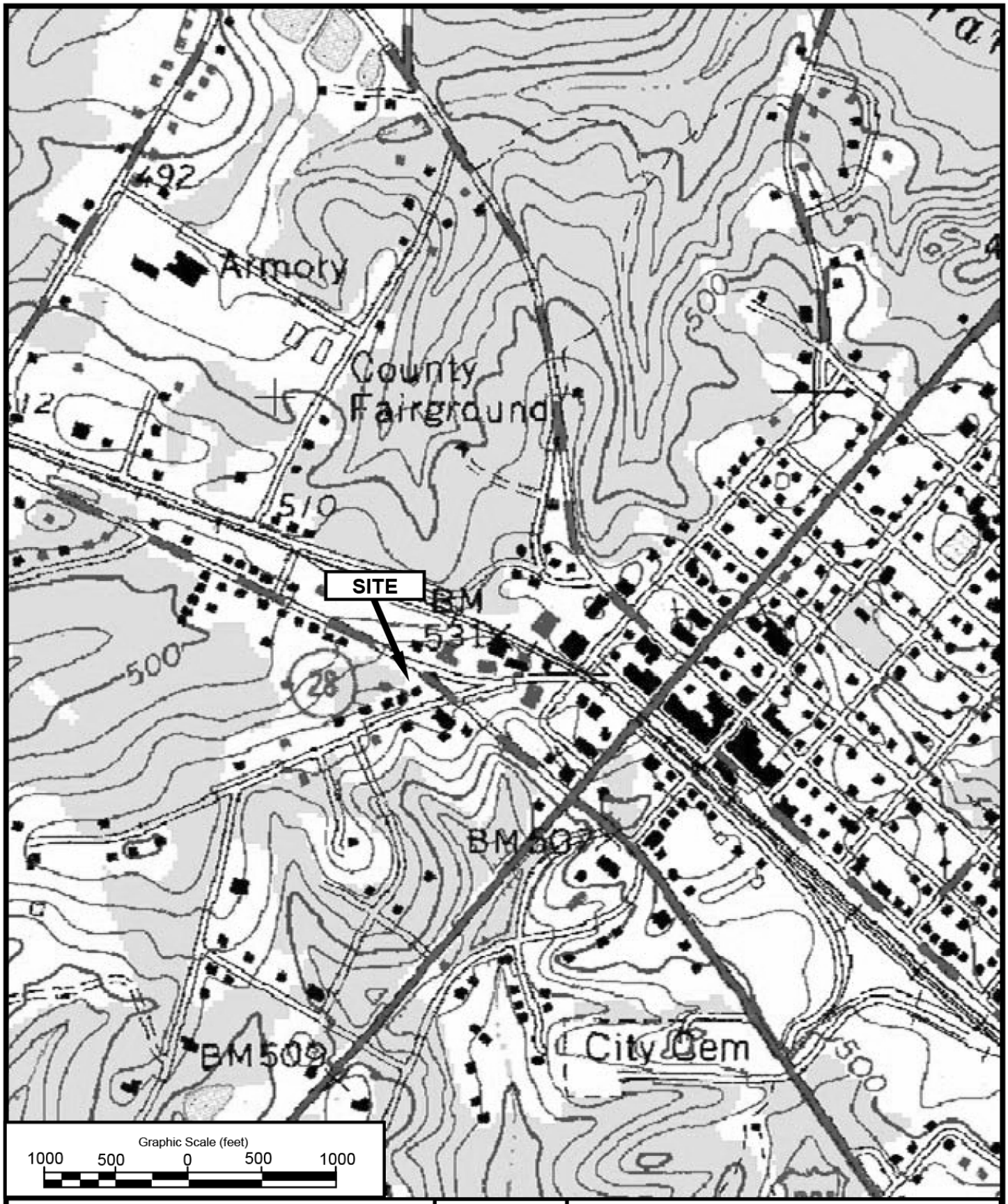
4.0 CONCLUSIONS AND RECOMMENDATIONS

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 11 events performed as part of this scope of work, approximately 8,200 pounds of VOCs have been removed from the subsurface. Free product thicknesses has been removed or has decreased in three of the AFVR/monitoring wells (MW-1, MW-4, and MW-32), has remained the same in three wells (MW-2, MW-20/20R), and has increased in one well (MW-5). This increase may be the result of mobilizing product toward the well with the AFVR.

Terracon recommends additional AFVR events to remove petroleum hydrocarbons from the area around the UST system (MW-5), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program. Additionally, a comprehensive sampling of the wells should be performed to evaluate the current conditions at the site.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Map



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET

PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

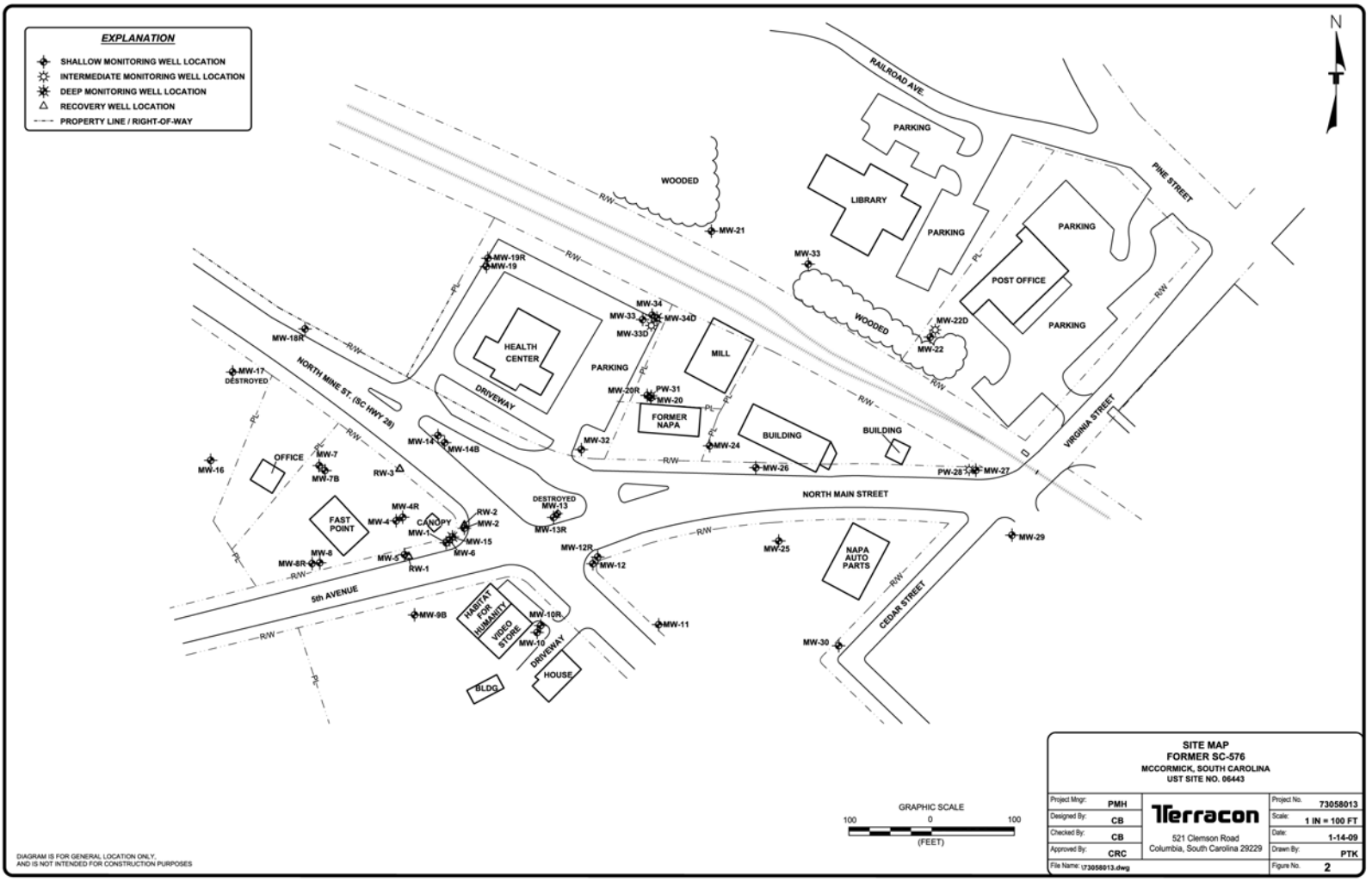


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73058013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road Columbia, South Carolina 29229	Date: 1-14-09
Approved By:	CRC		Drawn By: PTK
File Name: I73058013.dwg			Figure No. 2

TABLES

Table 1 – Free Product Thicknesses Data

TABLE 1
FREE PRODUCT THICKNESS DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NA
	1/6/09			DRY			
	10/19/09			ND	28.23	ND	71.80
MW-2	10/11/96	20.5 -30.5	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			27.10	28.10	**1.00**	71.99
	1/6/09			DRY			
	10/19/09			26.71	28.44	**1.73**	72.22
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
	1/6/09			DRY			
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
	1/6/09			ND	29.85	ND	71.71
	10/20/09			ND	29.86	ND	71.70
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			
	5/28/03			21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
	1/6/09			DRY			
	10/19/09			26.62	29.77	**3.15**	74.85
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	-26.34
	1/6/09			31.23	31.77	**0.54**	-31.77

TABLE 1
FREE PRODUCT THICKNESS DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	-30.80
	1/6/09			35.70	35.87	**0.17**	-35.87
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33
	6/06/07			ND	28.75	ND	70.15
	6/17/08			29.80	30.53	**0.73**	67.80
	1/6/09			32.21	32.50	**0.29**	66.40
	10/21/09			28.85	29.31	**0.46**	69.95
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			29.69	29.94	**0.25**	68.25
	1/6/09			31.78	31.80	**0.02**	66.58
	10/21/09			28.66	28.71	**0.05**	69.71
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			24.97	27.22	**2.25**	68.76
	1/6/09			31.11	33.11	**2.00**	64.62
	10/22/09			26.84	27.62	**0.78**	70.72
MW-34	1/11/10	19-34	95.61	ND	28.20	ND	67.41
MW-34D	1/11/10	55-60	95.71	ND	26.10	ND	69.61

Notes:
1) Ground Water elevations corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected

APPENDIX A

AFVR Field Data Sheets

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/19/09	Event #: 8
System Data (prior to offgas treatment)			Weather: Clear	Temp: 38 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1	4:00	4:30	30	100,000	100,000	100,000	1,593	1,522	1,558	33.95	40.07	20.03	20.03
MW-2	4:30	5:00	30	100,000	100,000	100,000	1,522	1,610	1,566	34.14	40.28	20.14	40.17
MW-5	5:00	5:30	30	100,000	100,000	100,000	1,610	1,394	1,502	32.74	38.64	19.32	59.49
	5:30	6:00	30	100,000	100,000	100,000	1,394	1,386	1,390	30.30	35.76	17.88	77.37
	6:00	6:30	30	100,000	100,000	100,000	1,386	1,415	1,401	30.53	36.03	18.01	95.38
	6:30	7:00	30	100,000	100,000	100,000	1,415	1,302	1,359	29.62	34.95	17.47	112.86
	7:00	7:30	30	100,000	100,000	100,000	1,302	1,769	1,536	33.47	39.50	19.75	132.61
	7:30	8:00	30	100,000	100,000	100,000	1,769	2,174	1,972	42.98	50.71	25.36	157.96
	8:00	8:30	30	100,000	100,000	100,000	2,174	1,993	2,084	45.42	53.60	26.80	184.76
	8:30	9:00	30	100,000	100,000	100,000	1,993	2,261	2,127	46.37	54.71	27.36	212.12
	9:00	9:30	30	100,000	100,000	100,000	2,261	2,556	2,409	52.51	61.96	30.98	243.10
	9:30	10:00	30	100,000	100,000	100,000	2,556	2,541	2,549	55.56	65.56	32.78	275.88
	10:00	10:30	30	100,000	100,000	100,000	2,541	2,534	2,538	55.32	65.27	32.64	308.51
	10:30	11:00	30	100,000	100,000	100,000	2,534	2,640	2,587	56.40	66.55	33.27	341.79
	11:00	11:30	30	100,000	100,000	100,000	2,640	2,714	2,677	58.36	68.86	34.43	376.22
	11:30	12:00	30	100,000	100,000	100,000	2,714	2,763	2,739	59.70	70.45	35.22	411.44
	12:00	12:30	30	100,000	100,000	100,000	2,763	2,794	2,779	60.57	71.47	35.74	447.18
	12:30	13:00	30	100,000	100,000	100,000	2,794	2,829	2,812	61.29	72.32	36.16	483.34
	13:00	13:30	30	100,000	100,000	100,000	2,829	2,874	2,852	62.16	73.35	36.68	520.02
	13:30	14:00	30	100,000	100,000	100,000	2,874	2,936	2,905	63.33	74.73	37.36	557.38
	14:00	14:30	30	100,000	100,000	100,000	2,936	3,145	3,041	66.28	78.21	39.11	596.49
	14:30	15:00	30	100,000	100,000	100,000	3,145	2,749	2,947	64.24	75.81	37.90	634.39
	15:00	16:00	30	100,000	100,000	100,000	2,749	2,899	2,824	61.56	72.64	36.32	670.71
	16:00	16:30	30	100,000	100,000	100,000	2,899	3,050	2,975	64.84	76.52	38.26	708.97

Total Extraction Time..... **12.0** **hours**
Total Liquid Volume..... **430** **gallons**
Total Liquid-phase Hydrocarbon..... **34.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9). **120.2** **gallons**

Total Hydrocarbon Recovery:..... **154.2** **gallons**

TOTAL lbs of VOC emissions = 708.97

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-1	28.23	--	--
MW-2	28.44	26.71	1.73
MW-5	29.77	26.62	3.15

Post Event

Well No.	Depth to	Depth to	Product
MW-1	21.19	--	--
MW-2	29.95	29.23	0.72
MW-5	28.60	--	--

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/19/09	Event #: 8

Offgas Data (measured at discharge of carbon drums) — **Weather:** Partly Cloudy — **Temp:** 38 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations Initial (PPM)	VOC Concentrations Ending (PPM)	VOC Concentrations Average (PPM)	Off-Gas Velocity (FPM) Initial (FPM)	Off-Gas Velocity (FPM) Ending (FPM)	Off-Gas Velocity (FPM) Average (FPM)	Total Flow (CFM)	VOC Emissions Rate (lbs/hr)	VOC Emissions Total (lbs)	VOC Emissions Cumulative Total (lbs)
MW-1	4:00	4:30	30	12,000	14,000	13,000	352	386	369	8.04	1.23	0.62	0.62
MW-2	4:30	5:00	30	14,000	14,000	14,000	386	848	617	13.45	2.22	1.11	1.73
MW-5	5:00	5:30	30	14,000	14,000	14,000	848	760	804	17.53	2.90	1.45	3.18
	5:30	6:00	30	14,000	14,000	14,000	760	555	658	14.33	2.37	1.18	4.36
	6:00	6:30	30	14,000	14,000	14,000	555	484	520	11.33	1.87	0.94	5.30
	6:30	7:00	30	14,000	14,000	14,000	484	445	465	10.13	1.67	0.84	6.13
	7:00	7:30	30	14,000	13,000	13,500	445	416	431	9.38	1.50	0.75	6.88
	7:30	8:00	30	13,000	12,000	12,500	416	352	384	8.37	1.23	0.62	7.50
	8:00	8:30	30	12,000	88,000	50,000	352	384	368	8.02	4.73	2.37	9.86
ADJ	8:30	9:00	30	88,000	100,000	94,000	384	568	476	10.38	11.51	5.75	15.62
Lower	9:00	9:30	30	100,000	100,000	100,000	568	791	680	14.81	17.48	8.74	24.36
Stinger	9:30	10:00	30	100,000	100,000	100,000	791	822	807	17.58	20.75	10.37	34.73
	10:00	10:30	30	100,000	100,000	100,000	822	859	841	18.32	21.62	10.81	45.54
	10:30	11:00	30	100,000	100,000	100,000	859	369	614	13.39	15.79	7.90	53.44
	11:00	11:30	30	100,000	100,000	100,000	369	354	362	7.88	9.30	4.65	58.09
	11:30	12:00	30	100,000	100,000	100,000	354	312	333	7.26	8.57	4.28	62.37
	12:00	12:30	30	100,000	100,000	100,000	312	296	304	6.63	7.82	3.91	66.28
	12:30	13:00	30	100,000	100,000	100,000	296	374	335	7.30	8.62	4.31	70.59
	13:00	13:30	30	100,000	100,000	100,000	374	448	411	8.96	10.57	5.29	75.88
	13:30	14:00	30	100,000	100,000	100,000	448	569	509	11.09	13.08	6.54	82.42
	14:00	14:30	30	100,000	100,000	100,000	569	549	559	12.19	14.38	7.19	89.61
	14:30	15:00	30	100,000	100,000	100,000	549	554	552	12.02	14.19	7.09	96.70
	15:00	15:30	30	100,000	100,000	100,000	554	519	537	11.70	13.80	6.90	103.60
	15:30	16:00	30	100,000	100,000	100,000	519	534	527	11.48	13.54	6.77	110.37

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **430** **gallons**
Total Liquid-phase Hydrocarbon..... **34.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **18.7** **gallons**

Total Hydrocarbon Recovery:..... **52.7** **gallons**

TOTAL lbs of VOC emissions = 110.37

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-1	28.23	--	--
MW-2	28.44	26.71	1.73
MW-5	29.77	26.62	3.15

Post Event

Well No.	Depth to	Depth to	Product
MW-1	21.19	--	--
MW-2	29.95	29.23	0.72
MW-5	28.60	--	--

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 8 Date: 10/19/09

Well No.	MW-4	MW-7B	MW-9B	MW-13R	MW-14B
Distance to Nearest Pumped Well	40 ft.	140 ft.	72 ft.	105 ft.	108 ft.
Time	Vacuum (inches of water)				
4:00	0	0	0	0	0
4:30	0	0	0	0	0
5:00	0	0	0	0	0
5:30	0	0	0	0	0
6:00	0.2	0	0	0	0
6:30	0.2	0	0	0	0
7:00	0.2	0	0	0	0
7:30	0.25	0	0	0	0
8:00	0.25	0	0	0	0
8:30	0.25	0	0	0	0
9:00	0.25	0	0	0	0
9:30	0.25	0	0	0	0
10:00	0.25	0	0	0	0
10:30	0.25	0	0	0	0
11:00	0.25	0	0	0	0
11:30	0.25	0	0	0	0
12:00	0.25	0	0	0	0
12:30	0.25	0	0	0	0
13:00	0.20	0	0	0	0
13:30	0.05	0	0	0	0
14:00	0.05	0	0	0	0
14:30	0.05	0	0	0	0
15:00	0.05	0	0	0	0
15:30	0.05	0	0	0	0
16:00	0.05	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/20/09	Event #: 9
System Data (prior to offgas treatment)			Weather: Clear	Temp: 45 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4	4:00	4:30	30	100,000	100,000	100,000	2,156	2,278	2,217	48.33	57.03	28.52	28.52
MW-4R	4:30	5:00	30	100,000	100,000	100,000	2,278	2,307	2,293	49.98	58.97	29.49	58.00
	5:00	5:30	30	100,000	100,000	100,000	2,307	2,640	2,474	53.92	63.63	31.81	89.82
	5:30	6:00	30	100,000	100,000	100,000	2,640	2,224	2,432	53.02	62.56	31.28	121.10
	6:00	6:30	30	100,000	100,000	100,000	2,224	2,500	2,362	51.49	60.76	30.38	151.48
	6:30	7:00	30	100,000	100,000	100,000	2,500	2,895	2,698	58.81	69.39	34.70	186.17
	7:00	7:30	30	100,000	100,000	100,000	2,895	2,720	2,808	61.20	72.22	36.11	222.28
	7:30	8:00	30	100,000	100,000	100,000	2,720	2,780	2,750	59.95	70.74	35.37	257.65
	8:00	8:30	30	100,000	100,000	100,000	2,780	2,812	2,796	60.95	71.92	35.96	293.61
	8:30	9:00	30	100,000	100,000	100,000	2,812	2,874	2,843	61.98	73.13	36.57	330.18
	9:00	9:30	30	100,000	100,000	100,000	2,874	3,144	3,009	65.60	77.40	38.70	368.88
	9:30	10:00	30	100,000	100,000	100,000	3,144	3,216	3,180	69.32	81.80	40.90	409.78
	10:00	10:30	30	100,000	100,000	100,000	3,216	3,444	3,330	72.59	85.66	42.83	452.61
	10:30	11:00	30	100,000	100,000	100,000	3,444	3,368	3,406	74.25	87.62	43.81	496.42
	11:00	11:30	30	100,000	100,000	100,000	3,368	3,299	3,334	72.67	85.75	42.88	539.30
	11:30	12:00	30	100,000	100,000	100,000	3,299	3,466	3,383	73.74	87.01	43.51	582.80
	12:00	12:30	30	100,000	100,000	100,000	3,466	3,464	3,465	75.54	89.13	44.57	627.37
	12:30	13:00	30	100,000	100,000	100,000	3,464	3,618	3,541	77.19	91.09	45.54	672.91
	13:00	13:30	30	100,000	100,000	100,000	3,618	3,618	3,618	78.87	93.07	46.53	719.45
	13:30	14:00	30	100,000	100,000	100,000	3,618	3,631	3,625	79.01	93.24	46.62	766.07
	14:00	14:30	30	100,000	100,000	100,000	3,631	3,575	3,603	78.55	92.68	46.34	812.41
	14:30	15:00	30	100,000	100,000	100,000	3,575	3,499	3,537	77.11	90.99	45.49	857.90
	15:00	16:00	30	100,000	100,000	100,000	3,499	3,622	3,561	77.62	91.59	45.80	903.70
	16:00	16:30	30	100,000	100,000	100,000	3,622	3,644	3,633	79.20	93.46	46.73	950.42

Total Extraction Time	**12.0**	**hours**
Total Liquid Volume	**320**	**gallons**
Total Liquid-phase Hydrocarbon	**0.2**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**161.1**	**gallons**
Total Hydrocarbon Recovery:	**161.2**	**gallons**

TOTAL lbs of VOC emissions = 950.42

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-4	DRY	--	--
MW-4R	29.86	--	--

Post Event

Well No.	Depth to	Depth to	Product
MW-4	DRY	--	--
MW-4R	29.83	--	--

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/20/09	Event #: 9
Offgas Data (measured at discharge of carbon drums)			Weather: Partly Cloudy	Temp: 45 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4	4:00	4:30	30	100,000	100,000	100,000	635	564	600	13.07	15.42	7.71	7.71
MW-4R	4:30	5:00	30	100,000	100,000	100,000	564	823	694	15.12	17.84	8.92	16.63
	5:00	5:30	30	100,000	100,000	100,000	823	692	758	16.51	19.49	9.74	26.37
	5:30	6:00	30	100,000	100,000	100,000	692	651	672	14.64	17.27	8.64	35.01
	6:00	6:30	30	100,000	100,000	100,000	651	628	640	13.94	16.45	8.23	43.24
	6:30	7:00	30	100,000	100,000	100,000	628	575	602	13.11	15.47	7.74	50.97
	7:00	7:30	30	100,000	100,000	100,000	575	558	567	12.35	14.57	7.29	58.26
	7:30	8:00	30	100,000	100,000	100,000	558	854	706	15.39	18.16	9.08	67.34
	8:00	8:30	30	100,000	100,000	100,000	854	898	876	19.10	22.53	11.27	78.61
	8:30	9:00	30	100,000	100,000	100,000	898	906	902	19.66	23.20	11.60	90.21
	9:00	9:30	30	100,000	100,000	100,000	906	224	565	12.32	14.53	7.27	97.47
	9:30	10:00	30	100,000	100,000	100,000	224	230	227	4.95	5.84	2.92	100.39
	10:00	10:30	30	100,000	100,000	100,000	230	230	230	5.01	5.92	2.96	103.35
	10:30	11:00	30	100,000	100,000	100,000	230	289	260	5.66	6.68	3.34	106.69
	11:00	11:30	30	100,000	100,000	100,000	289	345	317	6.91	8.15	4.08	110.77
	11:30	12:00	30	100,000	100,000	100,000	345	138	242	5.26	6.21	3.11	113.87
	12:00	12:30	30	100,000	100,000	100,000	138	143	141	3.06	3.61	1.81	115.68
	12:30	13:00	30	100,000	100,000	100,000	143	52	98	2.13	2.51	1.25	116.93
	13:00	13:30	30	100,000	100,000	100,000	52	48	50	1.09	1.29	0.64	117.58
	13:30	14:00	30	100,000	100,000	100,000	48	208	128	2.79	3.29	1.65	119.22
	14:00	14:30	30	100,000	100,000	100,000	208	705	457	9.95	11.74	5.87	125.10
	14:30	15:00	30	100,000	100,000	100,000	705	748	727	15.84	18.69	9.34	134.44
	15:00	15:30	30	100,000	100,000	100,000	748	302	525	11.45	13.51	6.75	141.19
	15:30	16:00	30	100,000	100,000	100,000	302	323	313	6.81	8.04	4.02	145.21

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **430** **gallons**
Total Liquid-phase Hydrocarbon..... **0.2** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **24.6** **gallons**

Total Hydrocarbon Recovery:..... **24.8** **gallons**

TOTAL lbs of VOC emissions = 145.21

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-1	28.23	--	--
MW-2	28.44	26.71	1.73

Post Event

Well No.	Depth to	Depth to	Product
MW-1	21.19	--	--
MW-2	29.95	29.23	0.72

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 9 Date: 10/20/09

Well No.	MW-1	MW-2	MW-5	MW-7B	MW-9B
Distance to Nearest Pumped Well	67 ft.	75 ft.	40 ft.	105 ft.	115 ft.
Time	Vacuum (inches of water)				
4:00	0	0	0	0	0
4:30	0	0	0	0	0
5:00	0	0	0	0	0
5:30	0	0	0	0	0
6:00	0	0.10	0	0	0
6:30	0	0.15	0	0	0
7:00	0	0.15	0	0	0
7:30	0	0.25	0.05	0	0
8:00	0	0.35	0.05	0	0
8:30	0	0.4	0.05	0	0
9:00	0	0.5	0.05	0	0
9:30	0	0.65	0.05	0	0
10:00	0	0.75	0.05	0	0
10:30	0	0.75	0.1	0	0
11:00	0	0.85	0.15	0	0
11:30	0	0.9	0.15	0	0
12:00	0	0.9	0.15	0	0
12:30	0	0.9	0.1	0	0
13:00	0	0.9	0.1	0	0
13:30	0	0.9	0.1	0	0
14:00	0	0.9	0.1	0	0
14:30	0	0.9	0.1	0	0
15:00	0	0.9	0.1	0	0
15:30	0	0.9	0.1	0	0
16:00	0	0.9	0.1	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/21/09	Event #: 10
System Data (prior to offgas treatment)			Weather: Clear	Temp: 42 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20	4:00	4:30	30	100,000	100,000	100,000	1,089	629	859	18.73	22.10	11.05	11.05
MW-20R	4:30	5:00	30	100,000	100,000	100,000	629	831	730	15.91	18.78	9.39	20.44
	5:00	5:30	30	100,000	100,000	100,000	831	1,072	952	20.74	24.48	12.24	32.68
	5:30	6:00	30	100,000	100,000	100,000	1,072	1,213	1,143	24.91	29.39	14.69	47.37
	6:00	6:30	30	100,000	100,000	100,000	1,213	1,310	1,262	27.50	32.45	16.23	63.60
	6:30	7:00	30	100,000	100,000	100,000	1,310	1,703	1,507	32.84	38.75	19.38	82.97
	7:00	7:30	30	100,000	100,000	100,000	1,703	1,699	1,701	37.08	43.76	21.88	104.85
	7:30	8:00	30	100,000	100,000	100,000	1,699	1,323	1,511	32.94	38.87	19.43	124.29
	8:00	8:30	30	100,000	100,000	100,000	1,323	968	1,146	24.97	29.47	14.73	139.02
	8:30	9:00	30	100,000	100,000	100,000	968	884	926	20.19	23.82	11.91	150.93
	9:00	9:30	30	100,000	100,000	100,000	884	1,380	1,132	24.68	29.12	14.56	165.49
	9:30	10:00	30	100,000	100,000	100,000	1,380	2,282	1,831	39.92	47.10	23.55	189.04
	10:00	10:30	30	100,000	100,000	100,000	2,282	2,294	2,288	49.88	58.86	29.43	218.47
	10:30	11:00	30	100,000	100,000	100,000	2,294	2,383	2,339	50.98	60.16	30.08	248.55
	11:00	11:30	30	100,000	100,000	100,000	2,383	2,424	2,404	52.40	61.83	30.91	279.46
	11:30	12:00	30	100,000	100,000	100,000	2,424	2,502	2,463	53.69	63.36	31.68	311.14
	12:00	12:30	30	100,000	100,000	100,000	2,502	2,526	2,514	54.81	64.67	32.34	343.47
	12:30	13:00	30	100,000	100,000	100,000	2,526	2,528	2,527	55.09	65.00	32.50	375.98
	13:00	13:30	30	100,000	100,000	100,000	2,528	2,583	2,556	55.71	65.74	32.87	408.84
	13:30	14:00	30	100,000	100,000	100,000	2,583	2,794	2,689	58.61	69.16	34.58	443.42
	14:00	14:30	30	100,000	76,000	88,000	2,794	2,801	2,798	60.99	63.33	31.66	475.09
	14:30	15:00	30	76,000	78,000	77,000	2,801	2,804	2,803	61.09	55.51	27.76	502.84
	15:00	16:00	30	78,000	66,000	72,000	2,804	2,935	2,870	62.56	53.15	26.57	529.42
	16:00	16:30	30	66,000	66,000	66,000	2,935	3,022	2,979	64.93	50.57	25.28	554.70

Total Extraction Time	**12.0**	**hours**
Total Liquid Volume	**537**	**gallons**
Total Liquid-phase Hydrocarbon	**4.3**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**94.0**	**gallons**
Total Hydrocarbon Recovery:	**98.3**	**gallons**

TOTAL lbs of VOC emissions = 554.70

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-20	29.31	28.85	0.46
MW-20R	28.71	28.66	0.05

Post Event

Well No.	Depth to	Depth to	Product
MW-20	30.88	--	--
MW-20R	31.27	--	--

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/21/09	Event #: 10

Offgas Data (measured at discharge of carbon drums) — **Weather:** Partly Cloudy — **Temp:** 42 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20	4:00	4:30	30	24,000	32,000	28,000	732	706	719	15.67	5.18	2.59	2.59
MW-20R	4:30	5:00	30	32,000	32,000	32,000	706	909	808	17.60	6.65	3.32	5.91
	5:00	5:30	30	32,000	36,000	34,000	909	825	867	18.90	7.58	3.79	9.70
	5:30	6:00	30	36,000	33,000	34,500	825	756	791	17.23	7.02	3.51	13.21
	6:00	6:30	30	33,000	36,000	34,500	756	755	756	16.47	6.70	3.35	16.56
	6:30	7:00	30	36,000	38,000	37,000	755	713	734	16.00	6.99	3.49	20.06
	7:00	7:30	30	38,000	33,000	35,500	713	729	721	15.72	6.58	3.29	23.35
	7:30	8:00	30	33,000	34,000	33,500	729	726	728	15.86	6.27	3.13	26.48
	8:00	8:30	30	34,000	74,000	54,000	726	505	616	13.42	8.55	4.27	30.76
	8:30	9:00	30	74,000	65,000	69,500	505	536	521	11.35	9.31	4.65	35.41
	9:00	9:30	30	65,000	62,000	63,500	536	782	659	14.37	10.76	5.38	40.79
	9:30	10:00	30	62,000	58,000	60,000	782	994	888	19.36	13.71	6.85	47.65
	10:00	10:30	30	58,000	52,000	55,000	994	1,290	1,142	24.90	16.16	8.08	55.73
	10:30	11:00	30	52,000	52,000	52,000	1,290	1,328	1,309	28.54	17.51	8.75	64.48
	11:00	11:30	30	100,000	52,000	76,000	1,328	1,260	1,294	28.21	25.30	12.65	77.13
	11:30	12:00	30	52,000	52,000	52,000	1,260	1,270	1,265	27.58	16.92	8.46	85.59
	12:00	12:30	30	52,000	52,000	52,000	1,270	1,333	1,302	28.37	17.41	8.70	94.30
	12:30	13:00	30	52,000	52,000	52,000	1,333	1,293	1,313	28.62	17.56	8.78	103.08
	13:00	13:30	30	52,000	52,000	52,000	1,293	1,351	1,322	28.82	17.68	8.84	111.92
	13:30	14:00	30	52,000	52,000	52,000	1,351	1,233	1,292	28.17	17.28	8.64	120.56
	14:00	14:30	30	52,000	32,000	42,000	1,233	2,095	1,664	36.28	17.98	8.99	129.55
	14:30	15:00	30	32,000	32,000	32,000	2,095	2,103	2,099	45.76	17.28	8.64	138.19
	15:00	15:30	30	32,000	26,000	29,000	2,103	1,702	1,903	41.47	14.19	7.10	145.28
	15:30	16:00	30	26,000	26,000	26,000	1,702	2,135	1,919	41.82	12.83	6.42	151.70

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **537** **gallons**
Total Liquid-phase Hydrocarbon..... **4.3** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **25.7** **gallons**

Total Hydrocarbon Recovery:..... **30.0** **gallons**

TOTAL lbs of VOC emissions = 151.70

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-20	29.31	28.85	0.46
MW-20R	28.44	26.71	1.73

Post Event

Well No.	Depth to	Depth to	Product
MW-20	30.88	--	--
MW-20R	31.27	--	--

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 10 Date: 10/21/09

Well No.	MW-13R	MW-19R	MW-24	MW-26	MW-32
Distance to Nearest Pumped Well	180 ft.	250 ft.	90 ft.	150 ft.	100 ft.
Time	Vacuum (inches of water)				
4:00	0	0	0	0	0
4:30	0	0	0	0	0
5:00	0	0	0	0	0
5:30	0	0	0	0	0
6:00	0	0	0	0	0
6:30	0	0	0	0	0
7:00	0	0	0	0	0
7:30	0	0	0	0	0
8:00	0	0	0.05	0	0
8:30	0	0	0.05	0	0
9:00	0	0	0.05	0	0
9:30	0	0	0.05	0	0
10:00	0	0	0.05	0	0
10:30	0	0	0.05	0	0
11:00	0	0	0.05	0	0
11:30	0	0	0.05	0	0
12:00	0	0	0.05	0	0
12:30	0	0	0.05	0	0
13:00	0	0	0.05	0	0
13:30	0	0	0.05	0	0
14:00	0	0	0.05	0	0
14:30	0	0	0.05	0	0
15:00	0	0	0.05	0	0
15:30	0	0	0.05	0	0
16:00	0	0	0.05	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/22/09	Event #: 11
System Data (prior to offgas treatment)			Weather: Clear	Temp: 45 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-32	4:00	4:30	30	88,000	91,000	89,500	2,298	2,287	2,293	49.98	52.78	26.39	26.39
	4:30	5:00	30	91,000	65,000	78,000	2,287	2,397	2,342	51.06	46.99	23.50	49.89
	5:00	5:30	30	65,000	65,000	65,000	2,397	2,355	2,376	51.80	39.73	19.86	69.75
	5:30	6:00	30	65,000	65,000	65,000	2,355	2,612	2,484	54.14	41.53	20.76	90.51
	6:00	6:30	30	65,000	62,000	63,500	2,612	2,713	2,663	58.04	43.49	21.75	112.26
	6:30	7:00	30	62,000	60,000	61,000	2,713	2,836	2,775	60.48	43.54	21.77	134.03
	7:00	7:30	30	60,000	56,000	58,000	2,836	2,912	2,874	62.65	42.88	21.44	155.47
	7:30	8:00	30	56,000	50,000	53,000	2,912	2,823	2,868	62.51	39.09	19.55	175.01
	8:00	8:30	30	50,000	46,000	48,000	2,823	2,816	2,820	61.47	34.81	17.41	192.42
	8:30	9:00	30	46,000	38,000	42,000	2,816	2,808	2,812	61.30	30.38	15.19	207.61
	9:00	9:30	30	38,000	28,000	33,000	2,808	2,812	2,810	61.26	23.85	11.93	219.54
	9:30	10:00	30	28,000	20,000	24,000	2,812	3,329	3,071	66.94	18.96	9.48	229.02
	10:00	10:30	30	20,000	26,000	23,000	3,329	3,694	3,512	76.55	20.78	10.39	239.40
	10:30	11:00	30	100,000	18,000	59,000	3,694	4,108	3,901	85.04	59.21	29.60	269.01
	11:00	11:30	30	100,000	22,000	61,000	4,108	4,287	4,198	91.51	65.87	32.93	301.94
	11:30	12:00	30	100,000	24,000	62,000	4,287	4,491	4,389	95.68	70.00	35.00	336.94
	12:00	12:30	30	100,000	23,000	61,500	4,491	4,512	4,502	98.13	71.21	35.61	372.55
	12:30	13:00	30	100,000	22,000	61,000	4,512	4,535	4,524	98.61	70.98	35.49	408.04
	13:00	13:30	30	100,000	18,000	59,000	4,535	4,628	4,582	99.88	69.53	34.77	442.81
	13:30	14:00	30	100,000	30,000	65,000	4,628	1,907	3,268	71.23	54.63	27.32	470.12
	14:00	14:30	30	100,000	90,000	95,000	1,907	1,957	1,932	42.12	47.21	23.61	493.73
	14:30	15:00	30	90,000	50,000	70,000	1,957	4,227	3,092	67.41	55.68	27.84	521.57
	15:00	16:00	30	50,000	48,000	49,000	4,227	3,911	4,069	88.70	51.29	25.64	547.21
	16:00	16:30	30	48,000	42,000	45,000	3,911	3,943	3,927	85.61	45.46	22.73	569.94

Total Extraction Time..... **12.0** **hours**
Total Liquid Volume..... **218** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9). **96.6** **gallons**

Total Hydrocarbon Recovery:..... **101.6** **gallons**

TOTAL lbs of VOC emissions = 569.94

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-32	27.62	26.84	0.78

Post Event

Well No.	Depth to	Depth to	Product
MW-32	27.11	--	--

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 10/22/09	Event #: 11

Offgas Data (measured at discharge of carbon drums) — **Weather:** Partly Cloudy — **Temp:** 45 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-32	4:00	4:30	30	14,000	20,000	17,000	1,437	1,512	1,475	32.14	6.45	3.22	3.22
	4:30	5:00	30	20,000	16,000	18,000	1,512	1,507	1,510	32.91	6.99	3.49	6.72
	5:00	5:30	30	16,000	16,000	16,000	1,507	1,510	1,509	32.89	6.21	3.10	9.82
	5:30	6:00	30	16,000	16,000	16,000	1,510	1,502	1,506	32.83	6.20	3.10	12.92
	6:00	6:30	30	16,000	16,000	16,000	1,502	1,453	1,478	32.21	6.08	3.04	15.96
	6:30	7:00	30	16,000	16,000	16,000	1,453	1,416	1,435	31.27	5.90	2.95	18.92
	7:00	7:30	30	16,000	14,000	15,000	1,416	1,469	1,443	31.45	5.57	2.78	21.70
	7:30	8:00	30	14,000	14,000	14,000	1,469	1,474	1,472	32.08	5.30	2.65	24.35
	8:00	8:30	30	14,000	14,000	14,000	1,474	1,439	1,457	31.75	5.25	2.62	26.97
	8:30	9:00	30	14,000	14,000	14,000	1,439	1,399	1,419	30.93	5.11	2.56	29.53
	9:00	9:30	30	14,000	14,000	14,000	1,399	2,067	1,733	37.78	6.24	3.12	32.65
	9:30	10:00	30	14,000	14,000	14,000	2,067	1,250	1,659	36.16	5.97	2.99	35.63
	10:00	10:30	30	14,000	12,000	13,000	1,250	1,269	1,260	27.46	4.21	2.11	37.74
	10:30	11:00	30	12,000	8,000	10,000	1,269	1,401	1,335	29.10	3.43	1.72	39.46
	11:00	11:30	30	8,000	10,000	9,000	1,401	2,101	1,751	38.17	4.05	2.03	41.48
	11:30	12:00	30	10,000	14,000	12,000	2,101	2,062	2,082	45.38	6.43	3.21	44.70
	12:00	12:30	30	14,000	12,000	13,000	2,062	2,118	2,090	45.56	6.99	3.49	48.19
	12:30	13:00	30	12,000	12,000	12,000	2,118	2,286	2,202	48.00	6.80	3.40	51.59
	13:00	13:30	30	12,000	12,000	12,000	2,286	2,188	2,237	48.77	6.91	3.45	55.04
	13:30	14:00	30	12,000	10,000	11,000	2,188	179	1,184	25.80	3.35	1.67	56.72
	14:00	14:30	30	10,000	6,000	8,000	179	161	170	3.71	0.35	0.17	56.89
	14:30	15:00	30	6,000	8,000	7,000	161	1,092	627	13.66	1.13	0.56	57.45
	15:00	15:30	30	8,000	18,000	13,000	1,092	1,064	1,078	23.50	3.60	1.80	59.26
	15:30	16:00	30	18,000	18,000	18,000	1,064	1,060	1,062	23.15	4.92	2.46	61.72

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **218** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **10.5** **gallons**

Total Hydrocarbon Recovery:..... **15.5** **gallons**

TOTAL lbs of VOC emissions = 61.72

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-32	27.62	26.84	0.78

Post Event

Well No.	Depth to	Depth to	Product
MW-32	27.11	--	--

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 11 Date: 10/22/09

Well No.	MW-13R	MW-19R	MW-20	MW-20R	MW-24
Distance to Nearest Pumped Well	90 ft.	250 ft.	105 ft.	108 ft.	155 ft.
Time	Vacuum (inches of water)				
4:00	0	0	0	0	0
4:30	0	0	0	0	0
5:00	0	0	0	0	0
5:30	0	0	0	0	0
6:00	0	0	0	0	0
6:30	0	0	0	0	0
7:00	0	0	0	0	0
7:30	0	0	0	0	0
8:00	0	0	0	0	0
8:30	0	0	0	0	0
9:00	0	0	0	0	0
9:30	0	0	0	0	0
10:00	0	0	0	0	0
10:30	0	0	0	0	0
11:00	0	0	0	0	0
11:30	0	0	0	0	0
12:00	0	0	0	0	0
12:30	0	0	0	0	0
13:00	0	0	0	0	0
13:30	0	0	0	0	0
14:00	0	0	0	0	0
14:30	0	0	0	0	0
15:00	0	0	0	0	0
15:30	0	0	0	0	0
16:00	0	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

APPENDIX B

Geologists Logs and Well Records

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-34**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/22/09	Date Completed: 12/23/09	Screen: 2" (0.010) Slotted PVC	From: 19 - To: 34
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 17 - To: 35.2
Drilling Co.: Terracon	Driller: Troy Gradwell	Seal: Bentonite Pellets	From: 15 - To: 17
Method: 4.25" HSA	Equipment: CME-550	Grout: Portland Cement Type I	From: 0 - To: 15
Boring Depth (ft.): 35.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 26.10 Time/Date: 15100 12/23/2009	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
2						**TOPSOIL**		2
4	X	1		1.8		Silty **CLAY**, trace medium size quartz grains, red, dry, no petroleum odor.		4
6								6
8						**SILT**, trace medium size quartz grains, light brown, dry, no petroleum odor.		8
10	X	2		3.2		**SILT**, light yellow, dry, no petroleum odor.		10
12	X	3		0.0				12
14	X	4	6 13 20	0.0		**PARTIALLY WEATHERED ROCK** red, dry, no petroleum odor.		14
16						**SILT**, light yellow, dry, no petroleum odor.		16
18						**SILT**, trace magnesium, orange and white, dry, no petroleum odor.		18
20	X	5	3 7 19	0.0		**SILT**, trace magnesium, light yellow, dry, no petroleum odor.		20
22								22
24	X	6		0.2		**SILT**, light yellow and orange, dry, no petroleum odor.		24
26						**SILT**, trace medium size quartz grains, mottled (orange, white, and black), no petroleum odor. ▼		26
28								28
30	X	7		0.2		**SILT**, orange, no petroleum odor.		30
32								32
34	X	8		0.4				34
						Boring Terminated at 35 ft.		

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 2/2/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-34

1. WELL OWNER INFORMATION:
Name: Crown Central, LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21203
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: One Stop
Street Address: 201 N. Mine St
City: McCormick Zip: 29835
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
*reddish silty clay w/trace of sand/Tan	0	13.5
*orange/tan silty clay PWR saprolite	13.5	27.0'
*orange/Tan silty clay damp (PWR)(Sap)	27.0'	35.5'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: MW-34

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other 4¼ HSA

7. PERMIT NUMBER: UST: 06443 UMW-23195

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 34.0' ft. Date Started: 12/22/09 Date Completed: 12/22/09

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2 in
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 19.0 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☐
Surface 0.0 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2
Slot/Gauge: .010 Length: 15 Foot
Set Between: 19.0 ft. and 34.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 28.2' ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 17.0' ft. to 35.5' ft.
Effective size 2 Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 17.0' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Troy H. Gradwell CERT. NO.: 1839
Address: (Print) 184 Dur Bin Farms Level: A ☐ B ☐ C ☑ D ☐ (circle one)
Gray Court, SC 29645
Telephone No.: 864 335-9448 Fax No.: 803 741 9900

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Troy Gradwell (Well Driller) Date: 12/23/09

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-34D**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/23/09	Date Completed: 12/24/09	Screen: 2" (0.010) Slotted PVC	From: 55.7 - To: 60.7
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 54.5 - To: 61.5
Drilling Co.: Terracon	Driller: Troy Gradwell	Seal: Bentonite Pellets	From: 52.5 - To: 54.5
Method: 4.25" HSA / Mud Rotary	Equipment: CME-550	Grout: Portland Cement Type I	From: 0 - To: 52.5
Boring Depth (ft.): 61.5	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 26.10 Time/Date: 15100 12/23/2009	Outer Casing/Stick Up: 5" Threaded PVC Sch 40	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
2						**TOPSOIL**		2
4						Silty **CLAY**, trace medium size quartz grains, red, dry, no petroleum odor.		4
6								6
8						**SILT**, trace medium size quartz grains, light brown, dry, no petroleum odor.		8
10						**SILT**, light yellow, dry, no petroleum odor.		10
12								12
14						**PARTIALLY WEATHERED ROCK** red, dry, no petroleum odor.		14
16						**SILT**, light yellow, dry, no petroleum odor.		16
18						**SILT**, trace magnesium, orange and white, dry, no petroleum odor.		18
20						**SILT**, trace magnesium, light yellow, dry, no petroleum odor.		20
22								22
24						**SILT**, light yellow and orange, dry, no petroleum odor.		24
26						**SILT**, trace medium size quartz grains, mottled (orange, white, and black), no petroleum odor. ▼		26
28								28
30						**SILT**, orange, no petroleum odor.		30
32								32
34								34
36						**SILT**, trace medium size quartz grains, wet, no petroleum odor.		36
38								38
40								40
42								42
44								44
46								46
48								48
50								50
52								52
54								54
56								56
58								58
60								60
						Boring Terminated at 61.5 ft.		

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 2/2/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-34D

1. WELL OWNER INFORMATION:
Name: Crown Central, LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21203
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: one STOP
Street Address: 201 N. Mine ST
City: McCormick Zip: 29835
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
* reddish silty clay	0	13.5'
* orangish/tan silty clay PWC sap	13.5'	27.0'
* orange/tan silty clay damp (PWR)	27.0'	40'
* gray sandy silt PWR saprolite	40	61.5'

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

5. REMARKS: MW-34D
5 inch PVC 0-50.0'
2 inch PVC Well 60.7'

6. TYPE: ☑ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other 4¼ HSA

7. PERMIT NUMBER: UST: 06443 UMW-23195

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 60.7' ft. Date Started: 12/22/09 Date Completed: 12/23/09

10. CASING: ☐ Threaded ☐ Welded
Diam.: 5" / 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
5 in. to 50 ft. depth
2 in. to 55.7 ft. depth
Height: Above ☐ Below ☐
Surface 0.0 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 5 Foot
Set Between: 55.7' ft. and 60.7 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 53.7' ft. to 61.5' ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 50.5' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Troy H. Gradwell CERT. NO.: 1839
Address: (Print) 184 Dubon Farms Level: A ☐ B ☐ C ☑ D ☐ (circle one)
Gray Court, SC 29645
Telephone No.: 864 335-9448 Fax No.: 803 741 9900

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Signed: Troy H. Gradwell (Well Driller) Date: 12/23/09
If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

APPENDIX C

Disposal Manifests

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C E S Q G

Manifest Document No.:

2. Page 1 of 1

3. Generator's Name and Mailing Address
Crown Central LLC - McCormick
201 N. Mine Street
McCormick, SC 29835
4. Generator's Phone (803) 741-9000

5. Transporter 1 Company Name: Advanced Environmental Options, Inc
6. US EPA ID Number: S C R 0 0 0 0 7 4 5 7 5
A. State Transporter's ID:
B. Transporter 1 Phone: (864) 488-911:

7. Transporter 2 Company Name:
8. US EPA ID Number:
C. State Transporter's ID:
D. Transporter 2 Phone:

9. Designated Facility Name and Site Address
Advanced Environmental Options,
25 Stan Perkins Road
Spartanburg, SC 29307
10. US EPA ID Number: S C R 0 0 0 7 6 8 6 7 1
E. State Facility's ID:
F. Facility's Phone: (864) 488-9111

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON/DOT NON/RCRA Regulated Materials (Contains Water) (01609)	1	T T	1505 ~~0 1 2 0 0~~	G
b.	0			
c.	0			
d.	0			

G. Additional Descriptions for Materials Listed Above
a) L/-

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Emergency Contact : David Hitchens 864-488-9111, cell - 864-590-4648
job #5996

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Neil AKRE
Signature:
Date: Month 10 Day 22 Year 09

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: MARK Seay
Signature:
Date: Month 10 Day 22 Year 09

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name:
Signature:
Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.
Printed/Typed Name:
Signature:
Date: Month Day Year

NON-HAZARDOUS WASTE

© 2002 LABELMASTER® (800) 621-5808 www.labelmaster.com
PRINTED ON RECYCLED PAPER USING SOYBEAN INK PRINTED WITH SOY INK

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
		800-535-5053	001219

5. Generator's Name and Mailing Address SC 576
201 N Mine St. McCormick SC 29835

Generator's Site Address (if different than mailing address).

Generator's Phone: 7305803

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC. — 877-682-0234 — U.S. EPA ID Number: SCR000766048

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address: DIVERSIFIED Recycling
132 GARDENS TERRACE West Columbia SC 29172

U.S. EPA ID Number

Facility's Phone: 8776820234

GENERATOR

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON RCRA NON Regulated Solid	01	VT	45	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: NIEL ANDRE SIGNATOR FOR CROWN CENTRAL — Signature — Month 1 Day 20 Year 09

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: JAMES Smith — Signature — Month 1 Day 20 Year 09

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Don Burnette — Signature — Month 1 Day 28 Year 10

169-BLS-C 5 11979 (Rev. 8/06)

DESIGNATED FACILITY TO GENERATOR

Publish... INC., Neenah, WI • USA • (800) 327-6868 • www.jjketter.com • Printed in the United States

NON-HAZARDOUS WASTE MANIFEST

1 Generator ID Number: CESQG

2. Page 1 of: 1-5

3. Emergency Response Phone: 800-535-5053

4. Waste Tracking Number: 001230

5. Generator's Name and Mailing Address: Crown Central
P.O. BOX 1168 Baltimore MD.

Generator's Phone: 803-791-4000 (Freeman)

Generator's Site Address (if different than mailing address): Foemer Crown SC576
201 W. Mine St
McCormick SC 29835

6. Transporter 1 Company Name: DIVERSIFIED RECYCLING INC.

U.S. EPA ID Number: 877-682-0234 | SCR000766048

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address: Diversified Recycling
132 Gardens Terrace West Columbia SC 29172

U.S. EPA ID Number: SCR000768127

Facility's Phone: 8776820234

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON RCRA NOW Regulated (Liquid Sludges)	01	PM	1120	P	2-55 gallon Drms
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
Well Drilling

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: P. Michael Hudgins | Signature: P. Michael Hudgins | Month: 2 | Day: 1 | Year: 10

TRANSPORTER INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: James Smith | Signature | Month: 2 | Day: 1 | Year: 10

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MAY 0 6 2010

UST DOCKET 19tech

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

Re: **Monitoring Well Installation and Gauging Directive**
One Stop: 201 N Mine Street, McCormick, SC
UST Permit **# 06443; CA # 38954; UMW-23659**
Release reported December 13, 1989
AFVR Report received February 8, 2010
McCormick County

Dear Mr. Janson:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the file and determined the next necessary scope of work is to install ten (10) new wells to define the free product plume. All wells are to have a 15' screened interval that brackets the water table. Approximately 30 days after monitoring wells are installed a select gauging event should occur. The following wells should be gauged: the ten new wells, MW1, MW2, MW4, MW4R, MW5, RW1, RW2, RW3, MW13R, MW14B, MW32, MW20, MW20R, and MW26.

Cost Agreement # **38954** has been approved in the amount shown on the enclosed cost agreement form for the aforementioned scope of work. The well installation and groundwater gauging activities may proceed immediately upon receipt of this letter. The MW Installation/Groundwater Gauging Report submitted at the completion of these activities should include the following:

- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Division, shall be presented in tabular form.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.
- Boring logs and 1903 forms for the well installation
- Updated Site Map with new monitoring well locations

Terracon can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

A groundwater gauging report and invoice are due within 90 days from the date of this letter. Interim invoices may be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the UST Division is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the UST Division for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum impacted groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report. If the COC concentrations, based on laboratory analysis, are below RBSL, please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence or inquiries regarding this project, please reference **UST Permit #06443 and CA#38954**. If you have any questions, please feel free to contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or email at koonjt@dhec.sc.gov.

Sincerely,

Justin Koon, Engineer Associate
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Cost Agreement
Monitoring well approval
Site Map (Proposed Locations of New Monitoring Wells)

cc: Terracon: 521 Clemson Road, Columbia, SC 29229 (w/ enc)
Technical File (w/ enc)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Approval

Approval is hereby granted to: Terracon
(On behalf of): Mr. Janson
Facility: One Stop: 201 N Mine St, McCormick, SC
UST Permit Number: 06443
County: McCormick

This approval is for the installation of ten (10) groundwater monitoring wells. The monitoring wells are to be installed in the approved location. Monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.
2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.
3. A Water Well Record Form or other form provided or approved by the Department shall be completed and submitted to the Department within 30 days after well completion or abandonment unless another schedule has been approved by the Department. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f
4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Department within 30 days of receipt of laboratory results unless another schedule has been approved by the Department as required by R.61-71.H.1.d.
5. If any of the information provided to the Department changes, notification to Justin Koon (tel: (803) 896-6649 or e-mail: koonjt@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.
6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.
7. Departmental approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issuance: **April 27, 2010** **Approval #:** **UMW-23659**

Justin Koon, Engineer Associate
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

Approved Cost Agreement 38954

Facility: 06443 ONE STOP
KOONJT
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		A EQUIPMENT	1.0000	575.00	575.00
		B PERSONNEL	2.0000	290.00	580.00
09 WELL INSTALLATION					
		B WATER TABLE (DRILLED)	350.0000	38.00	13,300.00
10 SAMPLE COLLECTION					
		E GAUGE WELL ONLY	24.0000	20.00	480.00
16 SUBSEQUENT SURVEY					
		SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL					
		C SOIL (TREATMENT/DISPOSAL)	12.0000	50.00	600.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	15,795.00	2,369.25
			Total Amount		18,164.25

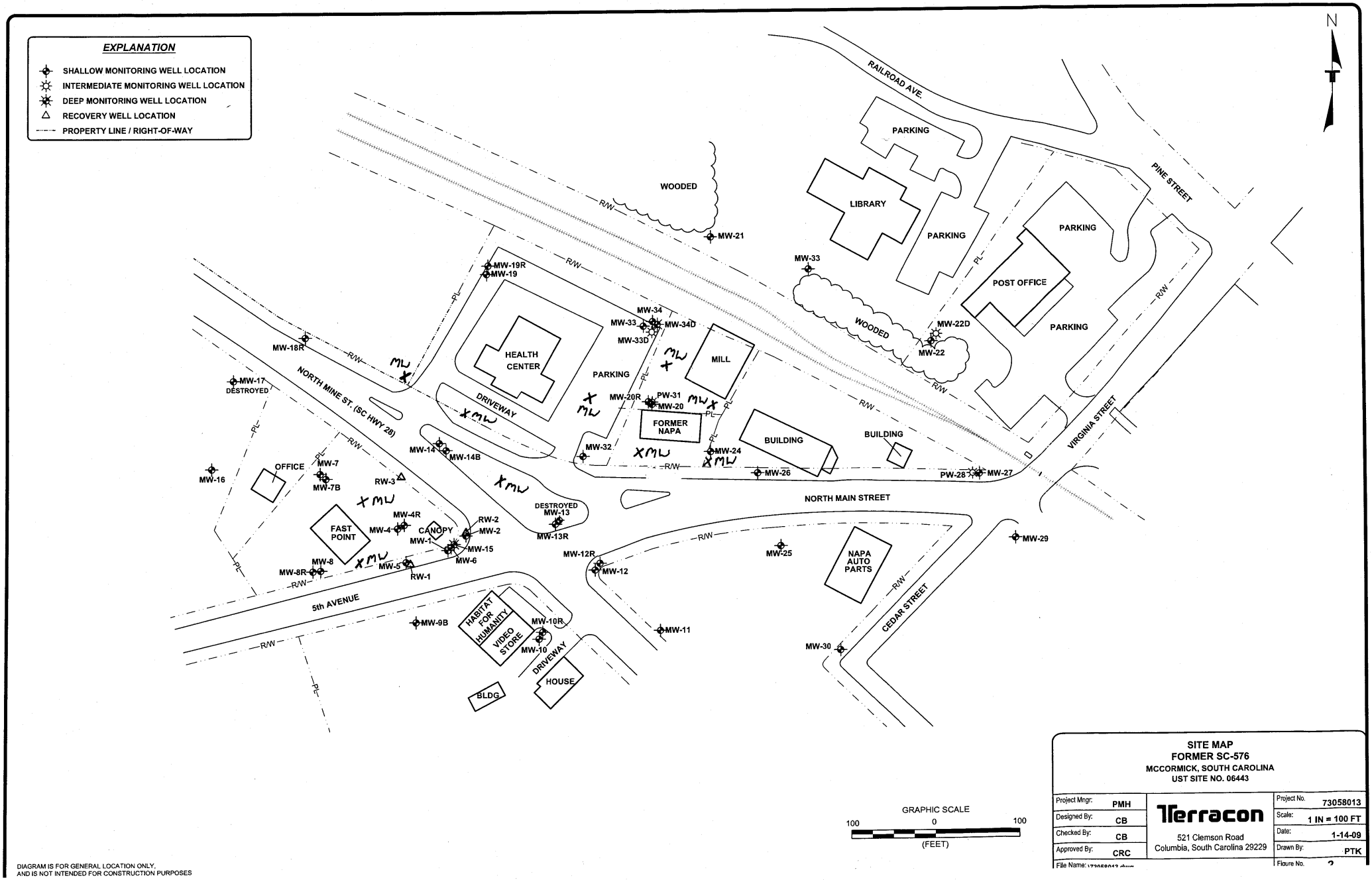


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73058013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road	Date: 1-14-09
Approved By:	CRC	Columbia, South Carolina 29229	Drawn By: PTK
File Name:			Figure No. 2

Terracon
Consulting Engineers & Scientists

521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

August 23, 2007

RECEIVED
AUG 27 2007
UNDERGROUND STORAGE
TANK PROGRAM

Ms. Sonja Utz
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: **Additional Assessment Report**
One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina
UST Permit No. 06443; CA #24044
Terracon Project No. 73048013

Dear Ms. Utz:

On behalf of Crown Central, LLC, ***Terracon Consultants, Inc.*** is pleased to submit this report of Additional Assessment for the former SC-576 site located in McCormick, South Carolina. If you have any questions regarding the contents of this report, or if there is a need for further information, please contact us.

Respectfully submitted,

Terracon Consultants, Inc.

Christopher Bartley
Environmental Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

Enclosures

cc: Jim Janson / Crown Central LLC.

UST PROGRAM
DOCKETING # 2

RECEIVED

AUG 2 7 2007

UNDERGROUND STORAGE
TANK PROGRAM

ADDITIONAL ASSESSMENT REPORT
ONE STOP (FORMER SC-576)

201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST Permit # 06443

Prepared for:

South Carolina Department of Health and Environmental Control

and

Crown Central LLC

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

August 23, 2007
Terracon Project No. 73048013

UST PROGRAM
DOCKETING # _____

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ADDITIONAL ASSESSMENT REPORT
Former SC-576
McCormick, South Carolina
Terracon Project No. 73048013

SECTION		PAGE NO.
1.0	INTRODUCTION	1
1.1	Facility Information	1
1.2	Site Description	1
1.3	Facility History	2
2.0	MONITORING WELL INSTALLATION	2
3.0	GROUND WATER SAMPLING AND ANALYSES	3
4.0	CONCLUSIONS AND RECOMMENDATIONS	4

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1 Ground Water Elevation Data
2 Ground Water Analytical Data - Petroleum Related Compounds

FIGURES

1 Site Location Map
2 Site Map
3 Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
4 Potentiometric Surface Map of the Intermediate/Deep Portion of the Shallow Aquifer
5 Benzene / MTBE Concentration Map

APPENDICES

A Geologist Logs and Water Well Records
B Ground Water Sampling Logs
C Chemical Analytical Data
D Disposal Manifests
E Tax Map and Property Ownership Table

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed the additional assessment at the former SC-576 site located in McCormick, South Carolina. The purpose of the assessment was to delineate the downgradient edge of the hydrocarbon plume and evaluate the current ground water quality conditions from a release of petroleum hydrocarbons previously reported at the site. The work was performed in accordance with the SCDHEC cost agreement # 24044 dated March 9, 2007, the Risk Based Corrective Action (RBCA) guidance document prepared by SCDHEC, dated May 15, 2001, and the SCDHEC Tier II Assessment guidance document dated March 15, 2000. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Facility Information

UST Permit #: **06443**

Facility Name: One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina

UST Owner: One Stop
Sahjanand Inc.
813 E. Gold Street
McCormick, SC

Property Owner: Mahesh Patel
2811 Reidville Road
Spartanburg, SC 29301
(864) 205-8777 mobile

1.2 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.3 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and in dissolved phase hydrocarbons in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Based on the results of the ground water sampling to date, the SCDHEC requested additional assessment be performed to delineate the downgradient extent of the hydrocarbon plume and to replace existing wells that historically have been dry. This report includes a summary of the field methods utilized along with the results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

2.0 MONITORING WELL INSTALLATION

Two permanent Type-II monitoring well (MW-31 and MW-32) were drilled downgradient of the former SC-576 site during June 5 through 7, 2007 (Figure 2). One replacement well (MW-10R) was installed to replace a historically dry well, MW-10. The monitoring wells were installed in areas based on the field screening results and as approved by the SCDHEC project manager. Additionally, a single double-cased well (MW-22D) was installed to delineate the plume in the deeper portion of the shallow aquifer.

MW-11 was not replaced as part of this assessment. This well was found to contain ground water during a site check in January 2007; therefore, site property assess was not obtained to replace this well. However, upon return to the site in June 2007, the well was dry.

The borings for wells MW-10R, MW-31, and MW-32 were drilled to depths ranging from 35 to 39 feet using a 6-inch diameter rotary-cone air rotary bit. The boring for deep well MW-22D was initially drilled to a depth of 47 feet using 8.25-inch diameter hollow stem augers, then a six-inch diameter PVC surface casing was installed and grouted. A six-inch diameter boring for this well was later drilled to a depth of 57 feet using air-rotary methods. The drilling tools and equipment were cleaned after each boring using a high-pressure steam generator. The soil cuttings were logged in the field by the on-site Geologist.

Monitoring wells MW-10R, MW-31, and MW-32 were constructed of 2-inch diameter schedule 40 PVC casing and 15-foot lengths of 2-inch diameter PVC well screens.

Monitoring well MW-22D was installed with 5-feet of 2-inch diameter PVC well screen. The screens have a manufactured slot size of 0.010-inch. An appropriately graded sand filter pack was placed within the annulus opposite each well screen to a height of approximately two feet above the top of the well screen. A minimum two-foot bentonite pellet layer was placed above the sand filter pack in each well and hydrated. The remaining annulus of each well was grouted to land surface with cement grout. Well construction details are included on the Geologist Logs Appendix A and on Table 1. The Geologist logs and the water well records, as compiled by the certified driller, are included in Appendix A.

The wells were completed below-grade within steel protective manhole covers. A concrete pad was constructed around each well. After installation, the wells were developed by surging and pumping or bailing until the pH and specific conductivity of the water had stabilized and the wells were producing relatively clear water. Soil cuttings and development water generated during drilling was collected and disposed by Nu-Way Environmental of Lexington, South Carolina. The disposal manifest is included in Appendix D.

The location of each well was plotted on a site map using field measurements. The vertical elevation of each well was surveyed by Terracon personnel, referenced to the previously surveyed elevations of the existing site monitoring wells. A site map showing the well locations in included as Figure 2, and the TOC elevations are recorded on Table 1.

Terracon mobilized to the site on August 4, 2007 in order to replace the manhole lid of monitoring well MW-2 was replaced as requested by the SCDHEC project manager.

3.0 GROUND WATER SAMPLING AND ANALYSES

Water levels were measured in existing site monitoring wells using an electric oil and water interface meter on June 6, 2007. A total of 37 wells gauged and/or sampled as part of this assessment. Seven wells (MW-4, MW-8, MW-10, MW-11, MW-12, MW-16, and MW-19) were dry or had insufficient water to sample. Five wells (MW-1, MW-2, MW-5, MW-4R, and MW-13R) had measurable thicknesses of free product and were not sampled. Well MW-14B had a 0.02 feet of free product and was sampled from the bottom of the bailer. MW-19 was damaged (bent below surface grade) and could not be sampled. The water level data was converted to elevations relative to an onsite benchmark by Terracon personnel. A summary of the water level data is presented on Table 2. Potentiometric surface maps of the upper and intermediate/deep portions of the shallow aquifer are included as Figures 4 and 5, respectively. Inspection of Figure 3 indicates shallow groundwater flows radially to the north, east and southeast. Figure 4 indicates that shallow ground water flow in the lower portion of the aquifer is toward the northeast.

Ground water samples were collected from 25 monitoring wells at the site on June 5 through June 7, 2007 and on July 24, 2007. The newly installed monitoring wells and those in which the screen did not bracket the water table (8 wells total) were purged with disposable polyethylene bailers dedicated to each well and/or a decontaminated submersible pump. A

total of 17 wells were not purged prior to sample collection because their screens bracketed the water table. Specific conductance, pH, and temperature were recorded during well purging prior to sample collection. The Ground Water Sampling Logs are included in Appendix B. The samples were collected with the dedicated bailers, poured into laboratory prepared containers, and placed in a cooler refrigerated with ice and delivered to Access Analytical, Inc. for analysis, accompanied with chain-of-custody documentation. Purge water was collected and disposed by Nu-Way Environmental of Columbia, South Carolina. The disposal manifest is included in Appendix D.

All of the ground water samples were analyzed for benzene, toluene, ethyl benzene, and xylene (BTEX), naphthalene, methyl tert butyl ether (MTBE) and 1,2 dichloroethane (1,2 DCA) per EPA Method 8260 and ethylene dibromide (EDB) per EPA Method 8011. A summary of the ground water quality data from the monitoring wells is presented in Table 2. The laboratory analytical reports and chain-of-custody forms are included in Appendix C.

BTEX and MTBE concentrations in the upper portion of the shallow aquifer were detected above Risk Based Screening Levels (RBSLs) in wells located adjacent to the UST and dispenser island areas and extending approximately 700 feet to the northeast. BTEX and MTBE concentrations in the lower portion of the shallow aquifer were detected above Risk Based Screening Levels (RBSLs) in wells located adjacent to the UST and dispenser island areas and extending approximately 700 feet to the northeast. A site map with contaminant concentrations is included as Figure 5.

4.0 RECEPTOR SURVEY

Terracon conducted a receptor survey in the vicinity of the site. No downgradient drinking water wells or surface water receptors have been identified within 1,000 feet of the UST system. Municipal water is available in the area. The USGS topographic map (Figure 1) do indicates an intermittent stream is located approximately 2,000 feet to the southeast of the site. The plume appears to be migrating generally northeast toward downtown McCormick. A Tax Map showing the surrounding property owners and a corresponding Tax Map Table are included in Appendix E.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties have been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former UST system. The horizontal and vertical extent of the contaminants has been defined by the monitoring well network. Hydrocarbon impact in the upper portion of the shallow aquifer downgradient extends approximately 700 feet to the northeast from the UST system. Additionally, the extent of the free product plume has been defined and extends offsite approximately 200 feet downgradient of the source area.

Terracon recommends free product removal by Aggressive Fluid Vapor Recovery (AFVR). AFVR was shown to be effective at removing free-phase product from the subsurface. AFVR is recommended to be performed at this site to remove product from four wells on-site (MW-1, MW-2, MW-5, and MW-4R) and one offsite well (MW-13R). and reduce the elevated dissolved concentrations detected in other monitoring wells (MW-6, MW-32, MW-14B). Once the product and high dissolved concentrations have been reduced, intrinsic corrective action may be an effective remedial method at this site.

APPENDIX

TABLES

1. Ground Water Elevation Data
2. Ground Water Analytical Data – Petroleum Related Compounds

FIGURES

1. Site Location Map
2. Site Map
3. Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
4. Potentiometric Surface Map of the Intermediate/ Deep Potion of the Shallow Aquifer
5. Benzene / MTBE / Naphthalene Concentration Map

APPENDICES

A. Geologist Logs and Water Well Records
B. Ground Water Sampling Logs
C. Chemical Analytical Data
D. Disposal Manifests
E. Tax Map and Property Ownership Table

TABLE 1
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-1	10/11/96	NA	100.03	22.20	23.23	1.03	77.60
	9/19/01			29.40	30.01	0.61	70.50
	9/18/02			ND	Dry	ND	Dry
	5/28/03			19.34	23.15	3.81	79.85
	12/20/04			28.37	29.57	1.20	71.40
	6/05/07			26.05	28.40	2.35	73.46
MW-2	10/11/96	NA	99.31	20.75	23.28	2.53	78.00
	9/19/01			28.31	29.74	1.43	70.69
	9/18/02			ND	Dry	ND	Dry
	5/28/03			17.50	23.39	5.89	80.51
	12/20/04			27.16	28.60	1.44	71.83
	6/05/07			25.20	27.18	1.98	73.67
MW-4	10/11/96	NA	101.51	23.45	24.29	0.84	77.88
	9/19/01			ND	Dry	ND	ND
	12/20/04			DRY	Dry	DRY	Dry
	6/05/07			ND	DRY	ND	ND
MW-4R	9/18/02	20.5-30.5	101.56	ND	Dry	ND	Dry
	5/28/03			19.51	20.84	1.33	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	2.09	73.70
MW-5	10/11/96	NA	102.16	21.89	24.08	2.19	79.79
	9/19/01			30.74	32.76	2.02	70.98
	9/18/02			ND	Dry	ND	Dry
	5/28/03			21.77	22.60	0.83	80.20
	12/20/04			29.89	30.90	1.01	72.05
	6/05/07			28.03	29.01	0.98	73.91
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86

TABLE 1
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FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NS	NS	NS	NS
	5/28/03			ND	18.00	ND	83.43
	12/20/04			ND	Dry	ND	Dry
	6/05/07			ND	28.71	ND	72.72
MW-8	10/11/96	10-20	103.85	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	12/20/04			DRY	Dry	DRY	Dry
	6/05/07			Dry	Dry	Dry	Dry
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
MW-10	10/11/96	8-18	93.53	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY	Dry	DRY	Dry
	6/05/07			Dry	Dry	Dry	Dry

TABLE 1
GROUND WATER ELEVATION DATA

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McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY	Dry	DRY	Dry
	6/05/07			ND	15.18	ND	70.62
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			ND	Dry	ND	Dry
	12/20/04			DRY	Dry	DRY	Dry
	6/05/07			Dry	Dry	Dry	Dry
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	0.41	77.87
	9/19/01			ND	Dry	ND	Dry
	12/20/04			ND	Dry	ND	Dry
	6/05/07	WELL DESTROYED					
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	0.30	79.96
	12/20/04			26.56	26.76	0.20	71.73
	6/05/07			24.26	24.34	0.08	74.05
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	0.63	65.35
	5/28/03			18.11	18.23	0.12	82.63
	12/20/04			30.26	30.69	0.43	70.39
	6/05/07			27.69	27.71	0.02	73.05

TABLE 1
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58
MW-16	10/11/96	13-23.5	100.57	ND	Dry	ND	Dry
	9/19/01			ND	22.47	ND	78.10
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	17.84	ND	82.73
	12/20/04			ND	Dry	ND	Dry
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL PAVED OVER					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL GROWN OVER					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY	Dry	DRY	Dry
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			ND	Dry	ND	NA
	12/20/04			29.39	30.21	0.82	69.33
	6/06/07			ND	28.75	ND	70.15

TABLE 1
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NS	NS	NS	NS
	6/05/07			ND	33.00	ND	67.87
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97

TABLE 1
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			ND	DRY	ND	DRY
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07				19.31		65.05
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81

Notes:

1) Ground Water elevations corrected for free product using the following formula:

*GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.*

2) ND - not detected

3) NA - data not available.

4) NS - not sampled

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-1	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/5/07	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-2	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/5/07	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-4R	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/5/07	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-5	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/5/07	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	BDL	**249**	NS	**64**
	9/18/02	**15,200**	684	291	2,278	**13,500**	**1.5**	**356**	NS	NA
	5/28/03	**11,400**	213	136	1,641	**13,200**	**1.8**	**385**	NS	NA
	12/21/04	**13,000**	300	320	1900	**15,000**	**1.2**	**400**	NS	NA
	6/05/07	**13,500**	<200	<200	<600	**17,500**	<0.01	<1000	<1000	NA
MW-7B	10/11/96	**35**	94	43	174	BDL	BDL	18	NS	**16**
	8/20/98	**31**	15	41	141	BDI	BDL	**41**	NS	**10**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	BDL	NS	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	4.9	9.4	1.9	10.4	4.7	<0.01	<5	<5	NS
MW-8	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	06/05/07	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	<1	<1	<1	<1	<1	<0.010	<5	<5	NS
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	BDL	NS	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	BDL	NS	BDL
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	**0.11**	BDL	NS	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	4.2	12.6	2.03	9.39	<1	<0.010	<5	<5	NS
MW-10	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/06/07	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10R	6/07/07	3.28	4.1	<1	3.6	<1	<0.010	<5	<5	NS
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NS	BDL
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/5/07	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	**0.18**	11.1	NS	NA
	5/28/03	**178**	BDL	BDL	1.7	BDL	**0.14**	19.2	NS	NA
	12/20/04	**230**	BDL	BDL	BDL	BDL	**1.1**	21	NS	NA
	6/06/07	**332**	<10	<10	<30	<10	<0.010	<50	<50	NS
MW-13	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	WELL DESTROYED								
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**3.6**	**456**	NS	NA
	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/05/07	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	BDL	NS	**695**
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**42.4**	**403**	NS	**153**
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**16.9**	**1,040**	NS	**1,113**
	9/18/02	FP	FP	FP	FP	FP	FP	FP	NS	FP
	5/28/03	FP	FP	FP	FP	FP	FP	FP	NS	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/05/07	**2,130**	**19,700**	**4,080**	**22,400**	<100	<0.010	**866**	<500	NS
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/18/02	3.3	BDL	BDL	BDL	6.9	BDL	2.1	NS	NA
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	BDL	NS	NA
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	BDL	NS	NA
	6/05/07	**50.5**	10.7	2	11.5	**49.6**	<0.010	<5	<5	NS
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NS	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NS	NA
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	BDL	NS	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NS	BDL
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NS	NA
	6/05/07	WELL DESTROYED								
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	6/05/07	WELL DESTROYED								
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	BDL	NS	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	<1	1.77	<1	<3	<1	<0.010	<5	<5	NS
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/05/07	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	BDL	NS	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	BDL	NS	NA
	6/06/07	<1	<1	<1	<3	**54.7**	<0.010	<5	<5	NS
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	BDL	NS	**660**
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**678**	**5,150**	NS	**519**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	FP	FP	FP	FP	FP	FP	FP	NS	FP
	6/07/07	**4,750**	**17,400**	**3,010**	**15,900**	**147**	<0.010	**1,230**	<500	NS
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**46**	**446**	NS	NA
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**E-67**	**393**	NS	NA
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**54**	**660**	NS	NA
	6/07/07	**8,750**	**13,800**	**1,490**	6,820	**973**	<0.010	<500	<500	NS
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/05/07	1.52	2.89	<1	<3	<1	<0.010	<5	<5	NS

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/20/04	NS	N	NS	NS	NS	NS	NS	NS	NS
	6/05/07	1.23	1.86	<1	<3	<1	<0.010	<5	<5	NS
MW-22D	6/07/07	3.2	8.2	1.24	6.01	<1	<0.010	<5	<5	NS
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	BDL	NS	**48**
	8/20/98	2.6	2	12	86	BDL	0.18	12.9	NS	**16.7**
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NS	NA
	9/18/02	BDL	BDL	BDL	6.4	BDL	BDL	1.6	NS	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	0.021	BDL	NS	NA
	6/07/07	<1	<1	<1	<3	<1	<0.010	<5	<5	NS
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	BDL	**480**	NS	+
	8/20/98	**3,081**	19	6	3,046	**788**	**2.48**	**393**	NS	**144**
	9/19/01	2.64	5.37	2.1	42.2	BDL	BDL	1.09	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**740**	4.58	BDL	269.8	**562**	**0.34**	**112**	NS	NA
	12/20/04	**1,200**	BDL	BDL	210	**370**	**0.16**	**180**	NS	NA
	6/05/07	**27**	9.18	1.26	5.89	**130**	<0.010	<5	<5	NS
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	BDL	NS	**655**
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**45**	**728**	NS	**367.4**
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	BDL	**2,070**	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**E-15**	**672**	NS	NA
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**6.1**	**940**	NS	NA
	6/06/07	**1,730**	**8,510**	**904**	5,720	<200	<0.010	<1000	<1000	NS
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5	NS
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/07/07	**8.74**	10.4	1.30	6.63	<1	0.036	<5	<5	NS
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5	NS

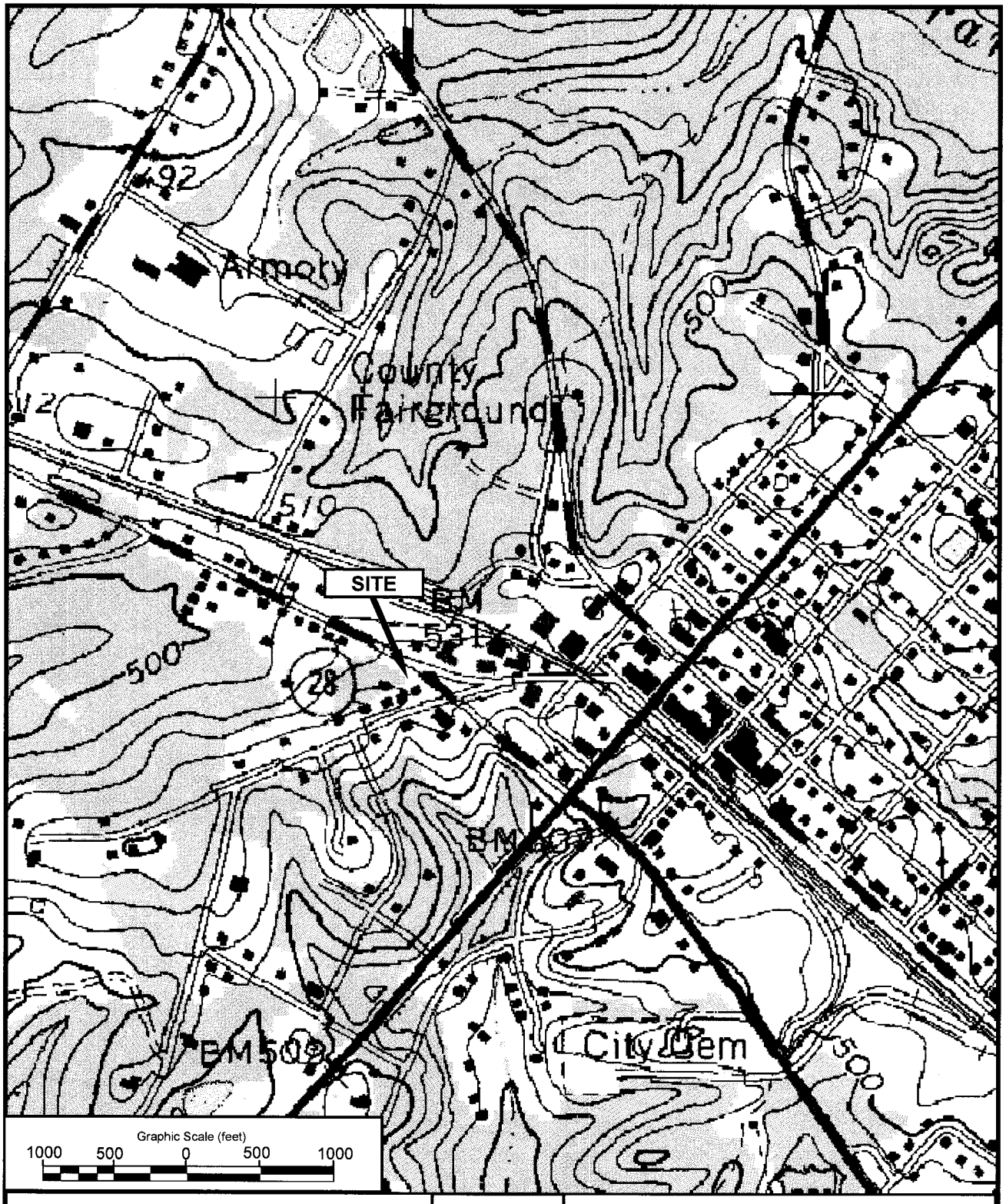
TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	1,2 DCA (ug/l)	PAHs (ug/l)
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NA
	6/06/07	<1	<1	<1	<3	<1	<0.010	<5	<5	NS
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**42**	**440**	NS	NA
	6/07/07	**8,640**	**13,100**	**1,380**	6,830	**1,030**	<0.010	<500	<500	NS
MW-32	6/07/07	**13,700**	**16,000**	**2,040**	**10,100**	**2,160**	**0.142**	**872**	<500	NS
MW-33	6/07/07	**8.95**	11.6	1.07	5.87	<1	<0.010	<5	<5	NA
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*0.05*	*25*	*0.05*	*10*

Notes:

1 *Results shown in boldface type indicate concentrations which exceed the RBSL for that compound*
2 *BDL - below laboratory method detection limit*
3 *ug/l - micrograms per liter or parts per billion*
4 *NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis*
5 *NA- not analyzed/ data not available*
6 *MTBE - Methyl-tert-butyl-ether*
7 *EDB - 1,2- Dibromomethane*
8 *PAHs - Total Polunuclear Aromatic Hydrocarbons as 1-Methylnaphthalene, 2-methylnaphthalene, and the 5 South Carolina specified parameters, Benzo(a)anthracene, Benzo(b)fluoroanthene, Benzo(k)fluroanthene, Chrysene, and Dibenzo(a,h)anthracene.*
9 *RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document*
10 *FP - Free Product detected in well, greater than 0.1 foot thickness.*
11 *1, 2 DCA - 1,2 Dichloroethane*



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET

PROJECT NO. 73048013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

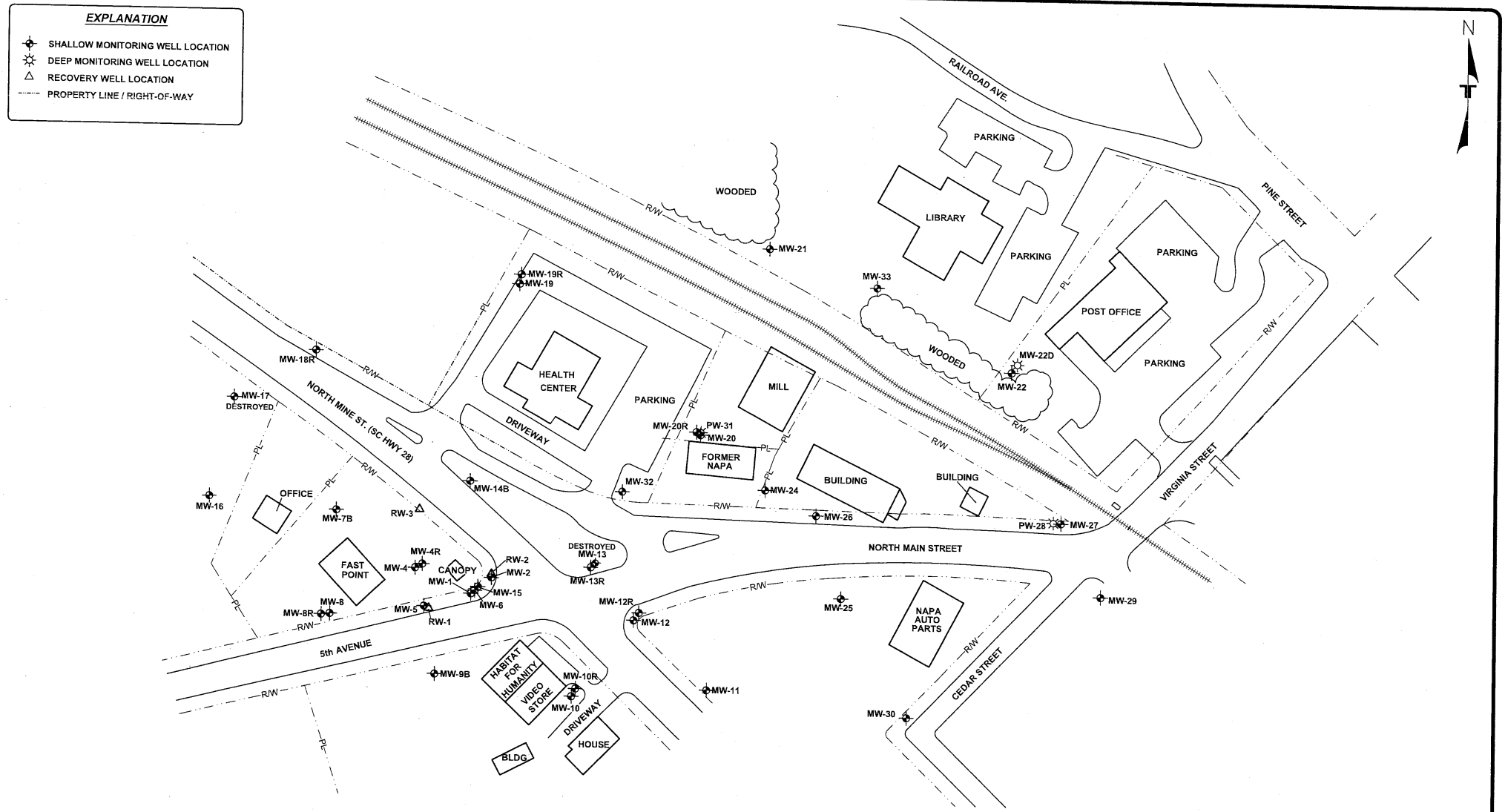


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73048013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road Columbia, South Carolina 29229	Date: 7-18-07
Approved By:	CRC		Drawn By: PTK
File Name: \73048013 Fig 2.dwg		L(Site)	Figure No. 2

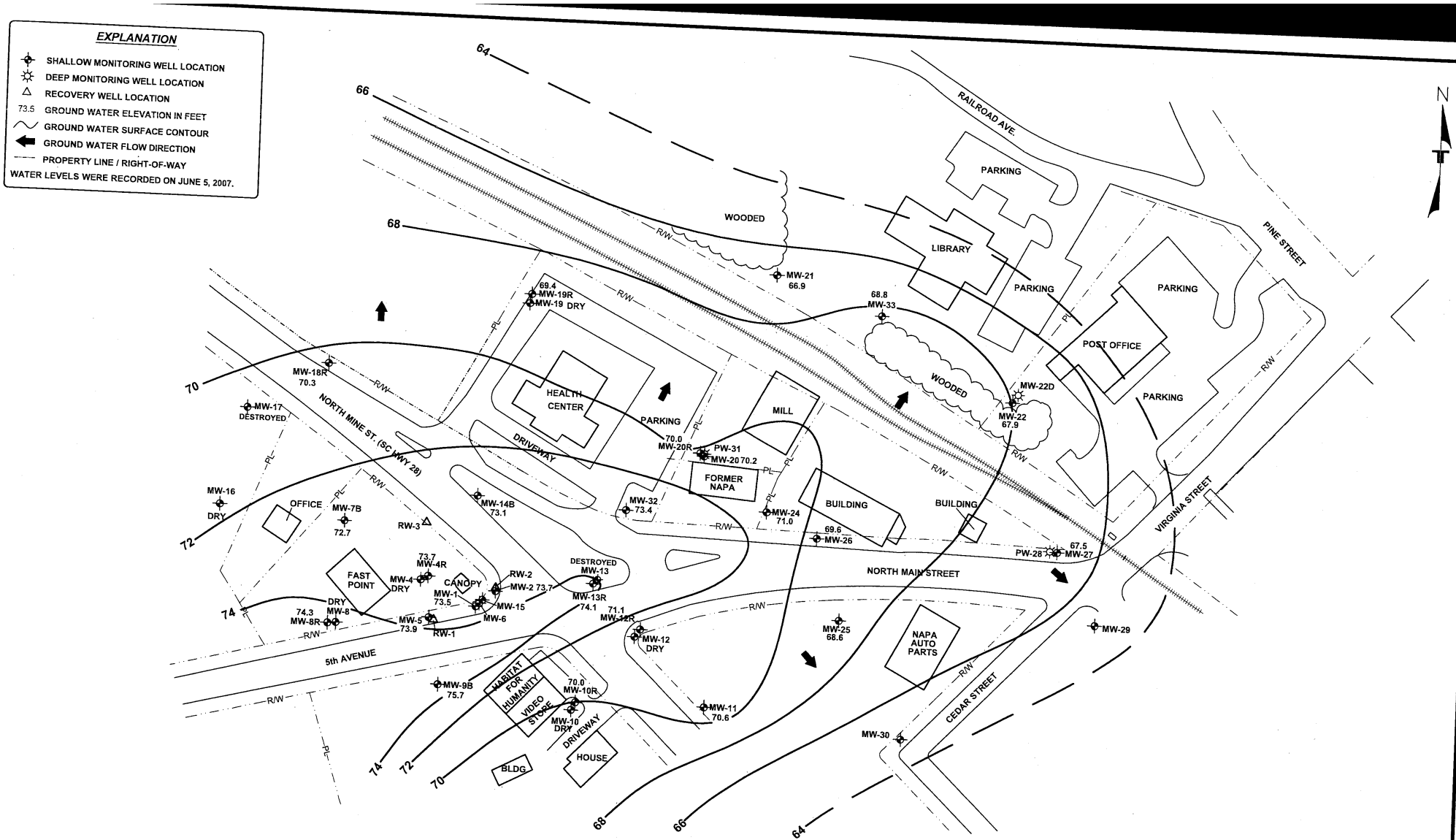


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GRAPHIC SCALE
100 0 100
(FEET)

POTENTIOMETRIC SURFACE MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73048013
Designed By:	CB	521 Clemson Road Columbia, South Carolina 29229	Scale: 1 IN = 100 FT
Checked By:	CB		Date: 8-24-07
Approved By:	CRC		Drawn By: PTK
File Name: \73048013 Fig 2.dwg		L(POT SHALLOW)	Figure No. 3

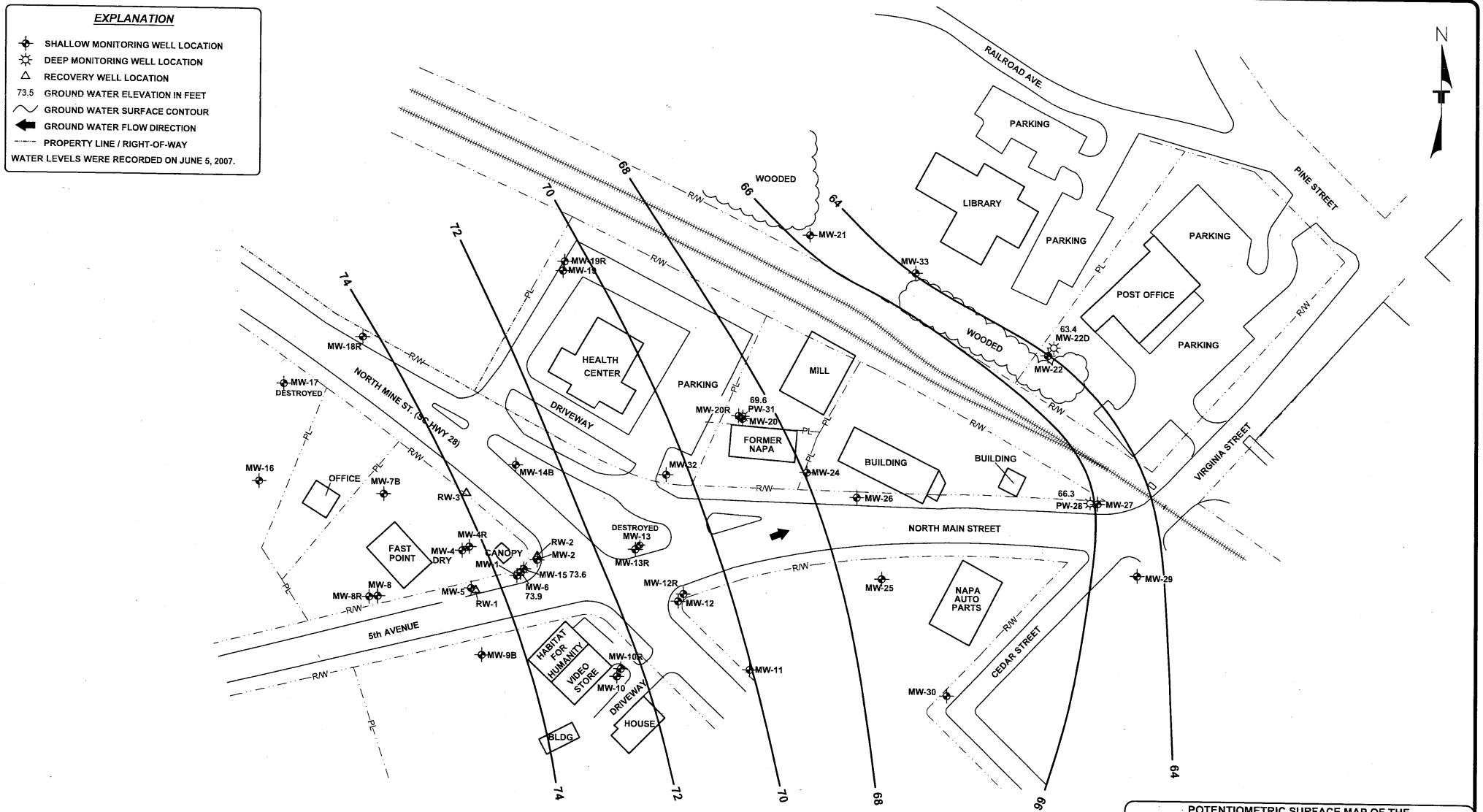


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

POTENTIOMETRIC SURFACE MAP OF THE INTERMEDIATE/ DEEP PORTIONS OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73048013
Designed By:	CB	521 Clemson Road Columbia, South Carolina 29229	Scale: 1 IN = 100 FT
Checked By:	CB		Date: 8-24-07
Approved By:	CRC		Drawn By: PTK
File Name: \73048013 Fig 2.dwg		L(POT DEEP)	Figure No. 4

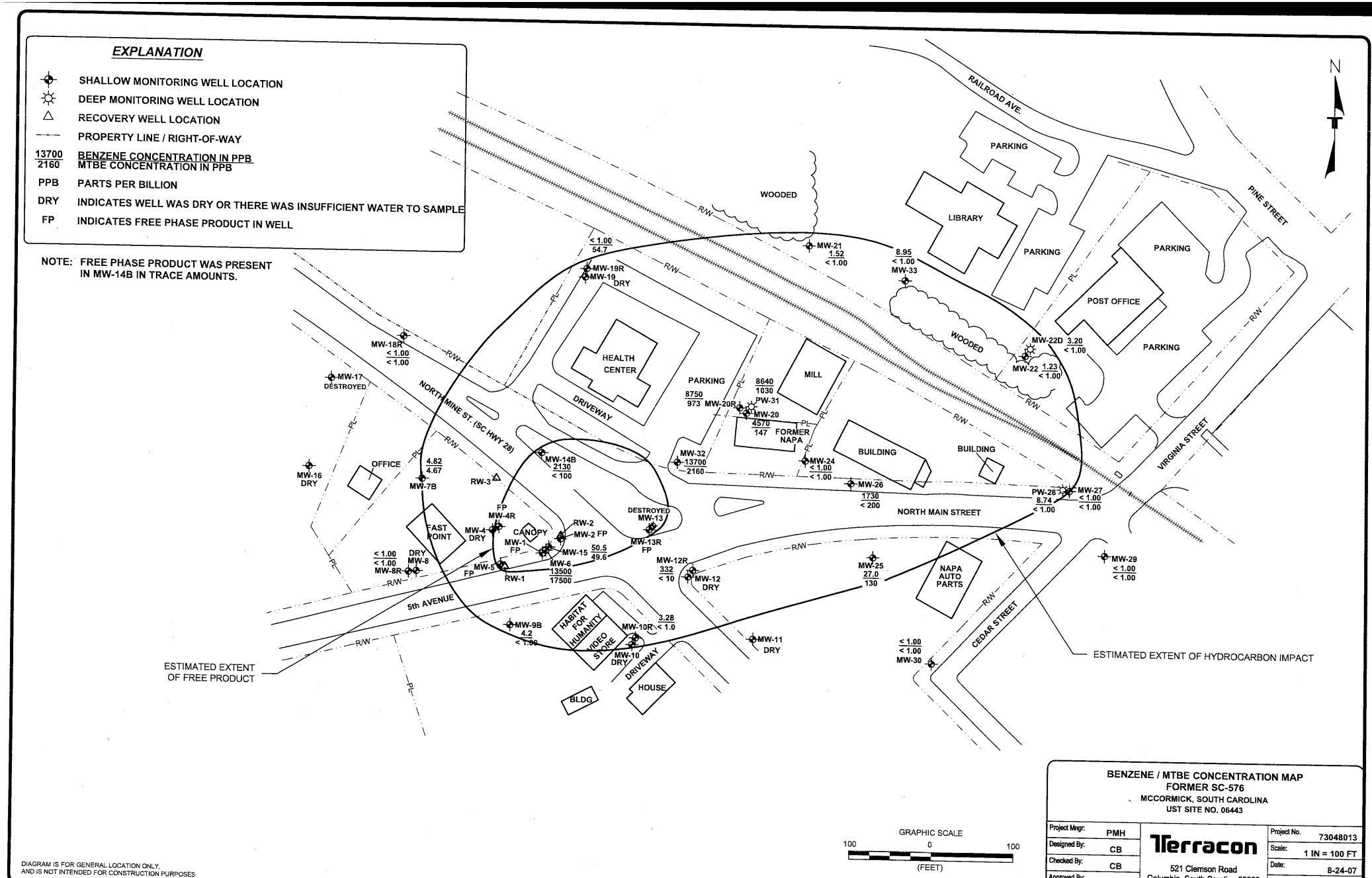


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

BENZENE / MTBE CONCENTRATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73048013
Designed By:	CB	521 Clemson Road Columbia, South Carolina 29229	Scale: 1 IN = 100 FT
Checked By:	CB		Date: 8-24-07
Approved By:	CRC		Drawn By: PTK
File Name: \73048013 Fig 2.dwg		L(COC)	Figure No. 5

GEOLOGIST LOG

Terracon

Project: SC-576		Project Number: 73048013	Boring/Well: **MW-10R**
Client: Crown Central, LLC.		***Well Construction Data***	
Date Started: 6/6/07	Date Completed: 6/6/07	Screen: Slotted (0.010") PVC	From: 24 - To: 39
Logged By: C. Bartley	Coordinates:	Pack: #2 Filter Sand	From: 22 - To: 39
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Chips	From: 20 - To: 22
Method: Air	Equipment: Gus Pech	Grout: Neat Cement	From: 0.5 - To: 20
Boring Depth (ft.): 39.0	TOC Elevation: 93.31	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 6	GW Level: ▼ 23.27 Time/Date: 6/6/07	Outer Casing/Stick Up: Flush Mount	

Depth	Sample	Sample Number	Blows/ 6 inches	PID/FID (ppm)	Lithology	Description	Well Detail	Depth
2						Silty **CLAY**, red.		2
4						Silty **CLAY**, red.		4
6								6
8								8
10						Silty **CLAY**, tan.		10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26						Silty **CLAY**, some rocks, tan.		26
28								28
30								30
32								32
34								34
36								36
38								38
						Boring Terminated at 39 feet.		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 8/2/07

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW 10R

1. WELL OWNER INFORMATION: PALMETTO CREEK SC-576
Name: LUCKY STRIKE (last) (first)
Address: NORTH MINE ST @ 5TH AVE
City: McCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS #1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
PWR	10	20
" "	20	30
" "	30	35
" "	35	39
" "	39	47
BEDROCK	47	57
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☑ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 39' ft. Date Started: 6-4-07 Date Completed: 6-5-07

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 24 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 24' ft. and 39' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 22' ft. to 39' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to 20' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: STEVE POWELL CERT. NO.: 1097
Address: (Print) Level (A) B C D (circle one)
4237 BIRCH MEADOW CIRCLE
BELMONT NC 28012
Telephone No.: 704 825-5097 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Signed: _____ Date: 6-11-07
Well Driller
If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Terracon GEOLOGIST LOG

Project: SC-576		Project Number: 73048013	Boring/Well: MW-22D
Client: Crown Central, LLC.		***Well Construction Data***	
Date Started: 6/4/07	Date Completed: 6/5/07	Screen: Slotted (0.010") PVC	From: 52 - To: 57
Logged By: C. Bartley	Coordinates:	Pack: #2 Filter Sand	From: 50 - To: 57
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Chips	From: 48 - To: 50
Method: Auger	Equipment: Gus Pech	Grout: Neat Cement	From: 0.5 - To: 48
Boring Depth (ft.): 57.0	TOC Elevation: 98.44	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 8"/6"	GW Level: ▼ 35.08 Time/Date: 6/6/07	Outer Casing/Stick Up: 6" Threaded Sch-80 PVC to 47 ft.	

Depth	Sample	Sample Number	Blows/ 6 inches	PID/FID (ppm)	Lithology	Description	Well Detail	Depth
2						Silty **CLAY**, some organics and brick pieces, reddish tan.		2
4						Silty **CLAY**, red.		4
6								6
8								8
10								10
12								12
14								14
16						Silty **CLAY**, reddish orange.		16
18								18
20								20
22								22
24								24
26								26
28								28
30								30
32								32
34							▼	34
36								36
38								38
40								40
42								42
44								44
46								46
48						Silty **CLAY**, reddish orange.		48
50								50
52								52
54								54
56								56
						Boring Terminated at 57 feet.		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 8/2/07

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-22D

1. WELL OWNER INFORMATION: FORMER CROWN
Name: LUCKY STRIKE (last) SC-576 (first)
Address: NORTH MINE ST @ 5TH AVE
City: McCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCORD
Name:
Street Address: SAME AS #1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
PWR	10	20
" "	20	30
" "	30	35
" "	35	39
" "	39	47
BED ROCK	47	57
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☑ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 57' ft. Date Started: 6-4-07 Date Completed: 6-5-07

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 52 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 5'
Set Between: 50 ft. and 57' ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 50 ft. to 57' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other
Depth: From 1' ft. to 48 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: STEVE POWNER WILL CERT. NO.: 1097
Address: (Print) Level: (A) B C D (circle one)
4237 BELLE MEADE CIRCLE
BELMONT NC 28012
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 6-11-07
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

GEOLOGIST LOG

Project: SC-576		Project Number: 73048013	Boring/Well: **MW-32**
Client: Crown Central, LLC.		***Well Construction Data***	
Date Started: 6/6/07	Date Completed: 6/6/07	Screen: Slotted (0.010") PVC	From: 20 - To: 35
Logged By: C. Bartley	Coordinates:	Pack: #2 Filter Sand	From: 18 - To: 35
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Chips	From: 16 - To: 18
Method: Air	Equipment: Gus Pech	Grout: Neat Cement	From: 0.5 - To: 16
Boring Depth (ft.): 35.0	TOC Elevation: 97.73	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 6	GW Level: ▼ 24.35 Time/Date: 6/6/07	Outer Casing/Stick Up: Flush Mount	

Depth	Sample	Sample Number	Blows/ 6 inches	PID/FID (ppm)	Lithology	Description	Well Detail	Depth
0–4						Silty **CLAY**, some reddish rock pieces, red.		
4–8						**CLAY**, red.		
8–20						**ROCK**, light tan to white follated.		
20–26						Silty **CLAY**, orange.		
26–28						**ROCK**, white.		
28–34						Silty **CLAY**, orange.		
34						**Boing Terminated at 25 feet.**		

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 8/2/07

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-32

1. WELL OWNER INFORMATION: FORMER CROWN
Name: LUCKY STRIKE (last) SC-576 (first)
Address: NORTH MINE ST @ 5TH AVE
City: State: Zip:
McCORMICK SC
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY:
Name: MCCORD
Street Address: SAME AS # 1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☑ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
PWR	10	20
" "	20	30
" "	30	35
" "	35	39
" "	39	47
BED ROCK	47	57
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☑ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 35' ft. Date Started: 6-6-07 Date Completed: 6-6-07

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 20 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 20' ft. and 35' ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 18' ft. to 35' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to 16' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: STEVE POWNIE WILE CERT. NO.: 1097
Address: (Print) Level: (A) B C D (circle one)
4237 BELLE MEADE CIRCLE
BELMONT NC 28012
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 6-11-07
Well Driller

If D Level Driller, provide supervising driller's name:

GEOLOGIST LOG

Project: SC-576		Project Number: 73048013	Boring/Well: MW-33
Client: Crown Central, LLC.		***Well Construction Data***	
Date Started: 6/5/07	Date Completed: 6/5/07	Screen: Slotted (0.010") PVC	From: 23 - To: 38
Logged By: C. Bartley	Coordinates:	Pack: #2 Filter Sand	From: 21 - To: 38
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Chips	From: 19 - To: 21
Method: Air	Equipment: Gus Pech	Grout: Neat Cement	From: 0.5 - To: 19
Boring Depth (ft.): 38.0	TOC Elevation: 94.62	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 6	GW Level: ▼ 25.81 Time/Date: 6/6/07	Outer Casing/Stick Up: Flush Mount	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
0–4						Silty **CLAY**, some organics, red.		
4–20						Silty **CLAY**, red.		
20–30						Silty **CLAY**, tan.		
30–38						Silty **CLAY**, brown		
38						**Boring Terminated at 38 feet.**		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 8/16/07

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-33

1. WELL OWNER INFORMATION:
Name: LUCKY STRIKE (last) RUMMER CREEK SC-576 (first)
Address: NORTH MINE ST @ 5TH AVE
City: McCormick State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS #1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:

4. ABANDONMENT: ☐ Yes ☐ No
Give Details Below
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
PWR	10	20
" "	20	30
" "	30	35
" "	35	39
" "	39	47
RED ROCK	47	57
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 38' ft. Date Started: 6-4-07 Date Completed: 6-5-07

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0-6 in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 0-6 ft. and 23' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 21' ft. to 35' ft.
Effective size 20/30 Uniformity Coefficient YES

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other
Depth: From 0' ft. to 19' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ ☐ Not installed
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: STEVE ROWELL CERT. NO.: 1097
Address: (Print) 4237 BIRCH MEADOW CIRCLE
BELMONT NC 28012
Level (A) B C D (circle one)
Telephone No.: 704 825-5097 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date: 6-11-07

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-1
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	WCWalker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	30.10 ft. BTOC
Depth to water:	28.40 ft. BTOC
Length of Water Column (LWC):	1.7 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: 2.35ft of product, no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-2
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	34.45 ft. BTOC
Depth to water:	27.18 ft. BTOC
Length of Water Column (LWC):	7.27 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: 1.98 ft of product, no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-4R
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1020~~ 1110

Total Well Depth:	20.5-30.5 ft. BTOC
Depth to water:	29.49 ft. BTOC
Length of Water Column (LWC):	1.01 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: 2.09 ft of free product, no sample

Field Analyses

Volume Purged (gal.)							
Time	~~1015~~ 1105						
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-5
Date:	6/6/07
Site Name:	SC-576
Project No.:	7309-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~[illegible]~~ NW

Total Well Depth:	32.89	ft. BTOC
Depth to water:	29.01	ft. BTOC
Length of Water Column (LWC):	3.88	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.

Remarks: 0.98 ft of product, no sample taken

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Well ID:	MW-6R
Date:	6/5/07
Site Name:	SC-576
Project No.:	7309-8013
Field Personnel:	L. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1520

Total Well Depth:	~~[illegible]~~ 58	ft. BTOC
Depth to water:	26.59	ft. BTOC
Length of Water Column (LWC):	31.41	ft.
Casing Diameter:	2 in	in.
1 Casing Volume = LWC x	.17 = ~~[illegible]~~ ≈ 5.3	gal.
3 Casing Volumes:	16	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	5	10	15				
Time			1515				
pH	7.33	6.97	6.86				
Specific Conductivity (umhos/cm)	372.4	371.7	179.0				
Water Temperature ©	25.9	22.9	23.1				
Turbidity	Mod	Mod	Low				
Dissolved Oxygen (mg/L)			2.66				

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Groundwater Sampling Log

Terracon

Page ____ of ____

Well ID:	MW-7B
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1040

Total Well Depth:	15-30 ft. BTOC
Depth to water:	28.71 ft. BTOC
Length of Water Column (LWC):	1.29 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	0.0						
Time	1035						
pH	6.35						
Specific Conductivity (umhos/cm)	314.7						
Water Temperature ©	25.7						
Turbidity	High						
Dissolved Oxygen (mg/L)	2.33						

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NP

Terracon

Groundwater Sampling Log

Well ID:	MW-8R
Date:	6/6/07
Site Name:	9C-57C
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	910

Total Well Depth:	25.40 ft. BTOC
Depth to water:	29.58 ft. BTOC
Length of Water Column (LWC):	10.42 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	0.0						
Time	905						
pH	5.35						
Specific Conductivity (umhos/cm)	44.7						
Water Temperature ©	23.0						
Turbidity	low						
Dissolved Oxygen (mg/L)	3.84						

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Groundwater Sampling Log

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Well ID:	MW-9B
Date:	6/6/07
Site Name:	SC-576
Project No.:	7364-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	930

Total Well Depth:	15-30	ft. BTOC
Depth to water:	25.23	ft. BTOC
Length of Water Column (LWC):	4.77	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	0.00						
Time	925						
pH	5.00						
Specific Conductivity (umhos/cm)	132.8						
Water Temperature ©	22.6						
Turbidity	Low						
Dissolved Oxygen (mg/L)	2.59						

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Well ID:	MW 10R
Date:	6/7/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1230

Total Well Depth:	24-39	ft. BTOC
Depth to water:	23.39	ft. BTOC
Length of Water Column (LWC):	15.63	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.66	gal.
3 Casing Volumes:	7.98	gal.

Remarks: ____

Field Analyses

Volume Purged (gal.)	2.66	5.32	7.98				
Time			1225				
pH	5.12	4.96	4.94				
Specific Conductivity (umhos/cm)	84.5	76.6	75.5				
Water Temperature ©	22.1	20.9	21.6				
Turbidity	high	high	high				
Dissolved Oxygen (mg/L)			8.52				

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Well ID:	ML-11
Date:	7/29/07
Site Name:	McCormick
Project No.:	7304-8013
Field Personnel:	V. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1330

Total Well Depth:	15. ft. BTOC
Depth to water:	15.18 ft. BTOC
Length of Water Column (LWC):	none ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	gal.
3 Casing Volumes:	gal.

Remarks: well dry, was able to obtain 1/4 liter of BTEX, Naph, MTBE, 12DCA
no sample remitted via Mike Hudgins

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-12R
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1130

Total Well Depth:	30-45	ft. BTOC
Depth to water:	24.29	ft. BTOC
Length of Water Column (LWC):	20.71	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.52	gal.
3 Casing Volumes:	10.56	gal.

Remarks: ____

Field Analyses

Volume Purged (gal.)	3.52	7.04	10.56				
Time			1175				
pH	5.79	5.82	5.65				
Specific Conductivity (umhos/cm)	91.0	54.80	83.5				
Water Temperature ©	23.4	22.3	23.2				
Turbidity	low	low	low				
Dissolved Oxygen (mg/L)			2.78				

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Well ID: MW-13K
Date: 6/5/07
Site Name: SC-576
Project No.: 7304-8013
Field Personnel: M. Walker
Weather Conditions: Sunny
Air Temperature: 85°F
Well Evacuation Method: Bailer
Sample Collection Method: Bailer
Sampled at (time): ~~1710~~ MW

Total Well Depth: 29.44 ft. BTOC
Depth to water: 24.34 ft. BTOC
Length of Water Column (LWC): 19.66 ft.
Casing Diameter: 2 in.
1 Casing Volume = LWC x .17 = 3.34 gal.
3 Casing Volumes: ____ gal.
Remarks: 0.08 ft of product, no sample taken due to product

Field Analyses

Volume Purged (gal.)	3.34	6.68	10.02 MW				
Time			1305				
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

Well ID:	MW-14B
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1310

Total Well Depth:	20-40	ft. BTOC
Depth to water:	27.71	ft. BTOC
Length of Water Column (LWC):	12.29	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.

Remarks: 0.02 ft of product, sampled anyway

Field Analyses

Volume Purged (gal.)	0.0						
Time	1305						
pH	5.66						
Specific Conductivity (umhos/cm)	40.6						
Water Temperature ©	25.3						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.34						

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Well ID:	MW-15
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1420

Total Well Depth:	125-130	ft. BTOC
Depth to water:	26.5	ft. BTOC
Length of Water Column (LWC):	103.5	ft.
Casing Diameter:	2"	in.
1 Casing Volume = LWC x .17 =	17.59	gal.
3 Casing Volumes:	52.77	gal.

Remarks: used SAFDACO pump to purge, purged into 55gal drum that safdaco moved & placed with other drums

Field Analyses

Volume Purged (gal.)	17.59	25.5	52.77				
Time			1415				
pH	6.42	6.25	6.30				
Specific Conductivity (umhos/cm)	154.4	150.2	146.9				
Water Temperature ©	29.1	27.5	26.2				
Turbidity	low	low	low				
Dissolved Oxygen (mg/L)			2.47				

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Well ID:	MW-18R
Date:	8/6/07
Site Name:	SC-57
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1220

Total Well Depth:	18.33 ft. BTOC
Depth to water:	28.66 ft. BTOC
Length of Water Column (LWC):	4.54 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	0.0						
Time	1220						
pH	5.34						
Specific Conductivity (umhos/cm)	114.9						
Water Temperature ©	23.9						
Turbidity	low						
Dissolved Oxygen (mg/L)	~~4.09~~ mw 6.95						

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Well ID:	MW-19
Date:	6/6/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	22.5 ft. BTOC
Depth to water:	21.41 ft. BTOC
Length of Water Column (LWC):	1.09 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: well bent, the Geiko will not fit into well, no sample

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©°							
Turbidity							
Dissolved Oxygen (mg/L)							

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Well ID:	MW-19R
Date:	6/6/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1500

Total Well Depth:	30-45	ft. BTOC
Depth to water:	24.71	ft. BTOC
Length of Water Column (LWC):	20.83	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.54	gal.
3 Casing Volumes:	10.62	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	3.54	7.08	10.62				
Time			1455				
pH	5.54	5.15	5.16				
Specific Conductivity (umhos/cm)	154.7	153.8	144.7				
Water Temperature ©	23.4	21.9	22.1				
Turbidity	Mod	Mod	Mod				
Dissolved Oxygen (mg/L)							

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Well ID:	MW-20
Date:	8/7/07
Site Name:	SC-756
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90 °F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	~~1410~~ 910

Total Well Depth:	18-38.5	ft. BTOC
Depth to water:	28.75	ft. BTOC
Length of Water Column (LWC):	9.75	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.

Remarks: Strong sheen & odor, no visable product

Field Analyses

Volume Purged (gal.)	0.0						
Time	905						
pH	4.56						
Specific Conductivity (umhos/cm)	748						
Water Temperature ©	21.7						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.28						

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Well ID:	MW-20R
Date:	6/7/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1030

Total Well Depth:	39.5 - 49.5	ft. BTOC
Depth to water:	28.39	ft. BTOC
Length of Water Column (LWC):	21.11	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.59	gal.
3 Casing Volumes:	10.77	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	3.59	7.18	10.77				
Time			1025				
pH	5.32	5.02	5.35				
Specific Conductivity (umhos/cm)	89.3	125.9	159.6				
Water Temperature ©	20.6	20.4	20.7				
Turbidity	Mod	Mod	Mod				
Dissolved Oxygen (mg/L)			2.67				

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Well ID:	MW-21
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	75
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	9:00

Total Well Depth:	Screen TD - 40.3 ft. BTOC
Depth to water:	30.61 ft. BTOC
Length of Water Column (LWC):	9.69 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	0.0						
Time	8:55						
pH	6.09						
Specific Conductivity (umhos/cm)	293.5						
Water Temperature ©	19.6						
Turbidity	Low						
Dissolved Oxygen (mg/L)	3.36						

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Well ID:	MW-22
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	L. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	9:20

Total Well Depth:	32-42	ft. BTOC
Depth to water:	33.00	ft. BTOC
Length of Water Column (LWC):	9.0	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.
Remarks:		

Field Analyses

Volume Purged (gal.)	0.0						
Time	9:15						
pH	5.04						
Specific Conductivity (umhos/cm)	36.7						
Water Temperature ©	19.4						
Turbidity	Mod						
Dissolved Oxygen (mg/L)	7.34						

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Well ID:	MW-24
Date:	9/7/07
Site Name:	9c-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1320

Total Well Depth:	35-40	ft. BTOC
Depth to water:	26.15	ft. BTOC
Length of Water Column (LWC):	13.85	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.35	gal.
3 Casing Volumes:	7.05	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	2.35	4.70	7.05				
Time			1315				
pH	5.85	6.10	6.15				
Specific Conductivity (umhos/cm)	132.1	128.6	129.6				
Water Temperature ©	23.6	22.7	22.5				
Turbidity	Mod	Mod	Mod				
Dissolved Oxygen (mg/L)			3.65				

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Well ID:	MW-22D
Date:	6/7/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1440

Total Well Depth:	50-55	ft. BTOC	
Depth to water:	35.08	ft. BTOC	
Length of Water Column (LWC):	16.95	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x .17 =	2.88	gal.	
3 Casing Volumes:	8.64	gal.	

Remarks: _____

Field Analyses

Volume Purged (gal.)	2.88	5.76	8.64				
Time			1435				
pH	5.96	5.68	5.59				
Specific Conductivity (umhos/cm)	115.7	94.8	95.6				
Water Temperature ©	25.3	23.4	23.8				
Turbidity	low	Mod	Mod				
Dissolved Oxygen (mg/L)							

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Well ID:	MW-25
Date:	6/5/07
Site Name:	SC-576
Project No.:	7304-8013
Field Personnel:	L. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1730

Total Well Depth:	15-30 ft. BTOC
Depth to water:	26.39 ft. BTOC
Length of Water Column (LWC):	3.61 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	0.0						
Time	1225						
pH	6.23						
Specific Conductivity (umhos/cm)	1643						
Water Temperature ©	23.1						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.68						

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Well ID:	MW-26
Date:	6/6/07
Site Name:	SC-578
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1340

Total Well Depth:	15-30	ft. BTOC
Depth to water:	26.74	ft. BTOC
Length of Water Column (LWC):	3.29	ft.
Casing Diameter:	2.0"	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.

Remarks:

Field Analyses

Volume Purged (gal.)	0.0						
Time	1335						
pH	5.89						
Specific Conductivity (umhos/cm)	205.8						
Water Temperature ©	26.4						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.04						

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Well ID:	MW-27
Date:	6/6/07
Site Name:	SC-576
Project No.:	7308-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1100

Total Well Depth:	25-40 ft. BTOC
Depth to water:	25.85 ft. BTOC
Length of Water Column (LWC):	14.15 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	8.0						
Time	1055						
pH	6.06						
Specific Conductivity (umhos/cm)	128.1						
Water Temperature ©	24.3						
Turbidity	low						
Dissolved Oxygen (mg/L)	2.50						

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Well ID:	PW-28
Date:	6/7/07
Site Name:	SC-576
Project No.:	7304-9013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	90°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1400

Total Well Depth:	50-50 ft. BTOC
Depth to water:	26.94 ft. BTOC
Length of Water Column (LWC):	23.06 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	3.92 gal.
3 Casing Volumes:	gal.
Remarks:	11.76

Field Analyses

Volume Purged (gal.)	3.92	7.84	11.76				
Time			1355				
pH	6.49	6.53	6.59				
Specific Conductivity (umhos/cm)	145.2	148.2	149.5				
Water Temperature ©	23.1	23.1	22.4				
Turbidity	low	low	Mod				
Dissolved Oxygen (mg/L)			3.64				

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Well ID:	MW-29
Date:	7/24/07
Site Name:	Mclormick
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	95°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1350

Total Well Depth:	23.38	ft. BTOC
Depth to water:	25.30	ft. BTOC
Length of Water Column (LWC):	12.7	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.16	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)							
Time	1345						
pH	6.86						
Specific Conductivity (umhos/cm)	9.06						
Water Temperature ©	24.7						
Turbidity	low						
Dissolved Oxygen (mg/L)	5.92						

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Well ID:	MW-30
Date:	7/24/07
Site Name:	McCormick
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1410

Total Well Depth:	11-26.00 ft. BTOC
Depth to water:	19.31 ft. BTOC
Length of Water Column (LWC):	6.69 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.14 gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)						
Time	1405					
pH	6.95					
Specific Conductivity (umhos/cm)	6.49					
Water Temperature ©	23.5					
Turbidity	low					
Dissolved Oxygen (mg/L)						

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2P

Groundwater Sampling Log

Terracon

Page ____ of ____

Well ID:	MW-31
Date:	6/7/07
Site Name:	SG-576
Project No.:	7304-803
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	80°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	940

Total Well Depth:	50.55	ft. BTOC	
Depth to water:	28.50	ft. BTOC	
Length of Water Column (LWC):	26.50	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x	.17	= 4.50	gal.
3 Casing Volumes:	13.5	gal.	

Remarks:

Field Analyses

Volume Purged (gal.)	4.5	9.0	13.5				
Time			935				
pH	5.22	5.76	5.55				
Specific Conductivity (umhos/cm)	217.4	189.3	166.9				
Water Temperature ©	20.5	20.5	20.8				
Turbidity	low	Mod	Mod				
Dissolved Oxygen (mg/L)			2.39				

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Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-32
Date:	6/7/07
Site Name:	SC-574
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1100

Total Well Depth:	20-35 ft. BTOC
Depth to water:	24.35 ft. BTOC
Length of Water Column (LWC):	10.65 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	strong odor

Field Analyses

Volume Purged (gal.)	0.0						
Time	1055						
pH	5.72						
Specific Conductivity (umhos/cm)	328.5						
Water Temperature ©	22.0F						
Turbidity	Mod						
Dissolved Oxygen (mg/L)	4.41						

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Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-33
Date:	7/6/07
Site Name:	SC-[illegible] 576
Project No.:	7304-8013
Field Personnel:	W. Walker
Weather Conditions:	Sunny
Air Temperature:	85°F
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1430

Total Well Depth:	23-38	ft. BTOC
Depth to water:	25.81	ft. BTOC
Length of Water Column (LWC):	12.19	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x ____ =		gal.
3 Casing Volumes:		gal.

Remarks:

Field Analyses

Volume Purged (gal.)	0.0						
Time	1425		~~1403~~ MW				
pH	6.03						
Specific Conductivity (umhos/cm)	562						
Water Temperature ©	23.5						
Turbidity	low						
Dissolved Oxygen (mg/L)	1.78						

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ANALYTICAL REPORT

CLIENT
Terracon
521 Clemson Rd
Columbia, SC 29205

ATTENTION
Mike Hudgins

PROJECT ID
Terracon-SC-576

LABORATORY REPORT NUMBER
207060918

DATE
06/19/2007

Primary Data Review By

Curtis Ekker
Data Validation Manager, GCAL

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 GSRI Rd. Baton Rouge, LA 70820.**
- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**
- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

CASE NARRATIVE

Client: Terracon **Report:** 207060918

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

This report is being resubmitted on 8/6/07 due to an addition to the SW-846 8260B analytical list.

VOLATILES MASS SPECTROMETRY

In the SW-846 8260B analysis for analytical batches 351322 and 351354, an MS/MSD is not reported. However, an LCS/LCSD is included for review.

In the SW-846 8260B analysis for analytical batch 351282, no MS/MSD was performed due to insufficient sample volume. The LCS/LCSD is included for review.

In the SW-846 8260B analysis, samples 20706091801 (MW-6), 20706091806 (MW-14B), 20706091810 (MW-20), 20706091811 (MW-20R), 20706091821 (PW-31), 20706091817 (MW-26), 20706091805 (MW-12R) and 20706091822 (MW-32) had to be diluted due to compounds that were detected above the linear range of the calibration.

In the SW-846 8260B analysis for analytical batch 351291, the MS/MSD exhibited recovery failures. This is attributed to matrix interference.

In the SW-846 8260B analysis for analytical batch 351314, the MS/MSD exhibited failures for the recoveries and/or RPDs. This is due to the high concentration of target analytes in the native sample.

SEMI-VOLATILES GAS CHROMATOGRAPHY

In the 8011 analysis for prep batch 350938, no MS/MSD was performed due to insufficient sample volume. All LCS/LCSD recoveries and RPDs were acceptable.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified RDL
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates an estimated value
U	Indicates the compound was analyzed for but not detected
B	(ORGANICS) Indicates the analyte was detected in the associated Method Blank
B	(INORGANICS) Indicates the result is between the RDL and MDL

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with ISO Guide 25 and NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Curtis Ekker

CURTIS EKKER
DATA VALIDATION MANAGER
GCAL REPORT 207060918

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091801	MW-6	Water	06/05/2007 15:20	06/09/2007 09:25
20706091802	MW-7B	Water	06/05/2007 10:40	06/09/2007 09:25
20706091803	MW-8R	Water	06/06/2007 09:10	06/09/2007 09:25
20706091804	MW-9B	Water	06/06/2007 09:30	06/09/2007 09:25
20706091805	MW-12R	Water	06/05/2007 11:30	06/09/2007 09:25
20706091806	MW-14B	Water	06/05/2007 13:10	06/09/2007 09:25
20706091807	MW-15	Water	06/05/2007 14:20	06/09/2007 09:25
20706091808	MW-18R	Water	06/06/2007 12:20	06/09/2007 09:25
20706091809	MW-19R	Water	06/06/2007 15:00	06/09/2007 09:25
20706091810	MW-20	Water	06/07/2007 09:10	06/09/2007 09:25
20706091811	MW-20R	Water	06/07/2007 10:30	06/09/2007 09:25
20706091812	MW-21	Water	06/05/2007 09:00	06/09/2007 09:25
20706091813	MW-22	Water	06/05/2007 09:20	06/09/2007 09:25
20706091814	MW-22D	Water	06/07/2007 14:40	06/09/2007 09:25
20706091815	MW-24	Water	06/07/2007 13:20	06/09/2007 09:25
20706091816	MW-25	Water	06/05/2007 12:30	06/09/2007 09:25
20706091817	MW-26	Water	06/06/2007 13:40	06/09/2007 09:25
20706091818	MW-27	Water	06/06/2007 11:00	06/09/2007 09:25
20706091819	PW-28	Water	06/07/2007 14:00	06/09/2007 09:25
20706091820	MW-31	Water	06/07/2007 14:30	06/09/2007 09:25
20706091821	PW-31	Water	06/07/2007 09:40	06/09/2007 09:25
20706091822	MW-32	Water	06/07/2007 11:00	06/09/2007 09:25
20706091823	MW-10R	Water	06/07/2007 12:30	06/09/2007 09:25

Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091801	MW-6	Water	06/05/2007 15:20	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	13500	200		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	17500	200		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091802	MW-7B	Water	06/05/2007 10:40	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4.82	1.00		ug/L
108-88-3	Toluene	9.38	1.00		ug/L
100-41-4	Ethylbenzene	1.90	1.00		ug/L
1330-20-7	Xylene (total)	10.4	3.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	4.67	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091804	MW-9B	Water	06/06/2007 09:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4.20	1.00		ug/L
108-88-3	Toluene	12.6	1.00		ug/L
100-41-4	Ethylbenzene	2.03	1.00		ug/L
1330-20-7	Xylene (total)	9.39	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091805	MW-12R	Water	06/05/2007 11:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	332	10.0		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091806	MW-14B	Water	06/05/2007 13:10	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	2130	100		ug/L
108-88-3	Toluene	19700	100		ug/L
100-41-4	Ethylbenzene	4080	100		ug/L
1330-20-7	Xylene (total)	22400	300		ug/L
91-20-3	Naphthalene	866	500		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091807	MW-15	Water	06/05/2007 14:20	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	50.5	1.00		ug/L
108-88-3	Toluene	10.7	1.00		ug/L
100-41-4	Ethylbenzene	1.95	1.00		ug/L
1330-20-7	Xylene (total)	11.5	3.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	49.6	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091808	MW-18R	Water	06/06/2007 12:20	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
108-88-3	Toluene	1.77	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091809	MW-19R	Water	06/06/2007 15:00	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
1634-04-4	tert-Butyl methyl ether (MTBE)	54.7	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091810	MW-20	Water	06/07/2007 09:10	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4570	100		ug/L
108-88-3	Toluene	17400	100		ug/L
100-41-4	Ethylbenzene	3010	100		ug/L
1330-20-7	Xylene (total)	15900	300		ug/L
91-20-3	Naphthalene	1230	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	147	100		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091811	MW-20R	Water	06/07/2007 10:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8750	100		ug/L
108-88-3	Toluene	13800	100		ug/L
100-41-4	Ethylbenzene	1490	100		ug/L
1330-20-7	Xylene (total)	6820	300		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091811	MW-20R	Water	06/07/2007 10:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
1634-04-4	tert-Butyl methyl ether (MTBE)	973	100		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091812	MW-21	Water	06/05/2007 09:00	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	1.52	1.00		ug/L
108-88-3	Toluene	2.89	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091813	MW-22	Water	06/05/2007 09:20	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	1.23	1.00		ug/L
108-88-3	Toluene	1.86	1.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091814	MW-22D	Water	06/07/2007 14:40	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3.20	1.00		ug/L
108-88-3	Toluene	8.20	1.00		ug/L
100-41-4	Ethylbenzene	1.24	1.00		ug/L
1330-20-7	Xylene (total)	6.01	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091816	MW-25	Water	06/05/2007 12:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	27.0	1.00		ug/L
108-88-3	Toluene	9.18	1.00		ug/L
100-41-4	Ethylbenzene	1.26	1.00		ug/L
1330-20-7	Xylene (total)	5.89	3.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	130	1.00		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091817	MW-26	Water	06/06/2007 13:40	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	1730	200		ug/L
108-88-3	Toluene	8510	200		ug/L
100-41-4	Ethylbenzene	904	200		ug/L
1330-20-7	Xylene (total)	5720	600		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091819	PW-28	Water	06/07/2007 14:00	06/09/2007 09:25

SW-846 8011

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	0.036	0.010		ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8.74	1.00		ug/L
108-88-3	Toluene	10.4	1.00		ug/L
100-41-4	Ethylbenzene	1.30	1.00		ug/L
1330-20-7	Xylene (total)	6.63	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091820	MW-31	Water	06/07/2007 14:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8.95	1.00		ug/L
108-88-3	Toluene	11.6	1.00		ug/L
100-41-4	Ethylbenzene	1.07	1.00		ug/L
1330-20-7	Xylene (total)	5.87	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091821	PW-31	Water	06/07/2007 09:40	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8640	100		ug/L
108-88-3	Toluene	13100	100		ug/L
100-41-4	Ethylbenzene	1380	100		ug/L
1330-20-7	Xylene (total)	6830	300		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	1030	100		ug/L

Summary of Compounds Detected (con't)

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091822	MW-32	Water	06/07/2007 11:00	06/09/2007 09:25

SW-846 8011

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	0.142	0.010		ug/L

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	13700	100		ug/L
108-88-3	Toluene	16000	100		ug/L
100-41-4	Ethylbenzene	2040	100		ug/L
1330-20-7	Xylene (total)	10100	300		ug/L
91-20-3	Naphthalene	872	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	2160	100		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091823	MW-10R	Water	06/07/2007 12:30	06/09/2007 09:25

SW-846 8260B

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3.28	1.00		ug/L
108-88-3	Toluene	4.14	1.00		ug/L
1330-20-7	Xylene (total)	3.62	3.00		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091801	MW-6	Water	06/05/2007 15:20	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			200	06/16/2007 00:29	ADI	351282

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**13500**	**200**		**ug/L**
108-88-3	Toluene	ND	200		ug/L
100-41-4	Ethylbenzene	ND	200		ug/L
1330-20-7	Xylene (total)	ND	600		ug/L
91-20-3	Naphthalene	ND	1000		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**17500**	**200**		**ug/L**
107-06-2	1,2-Dichloroethane	ND	1000		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	10600	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	10000	11100	ug/L	111	77 - 127
2037-26-5	Toluene d8	10000	11000	ug/L	110	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	10400	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 17:41	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091802	MW-7B	Water	06/05/2007 10:40	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 11:27	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4.82	1.00		ug/L
108-88-3	Toluene	9.38	1.00		ug/L
100-41-4	Ethylbenzene	1.90	1.00		ug/L
1330-20-7	Xylene (total)	10.4	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	4.67	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.7	ug/L	107	78 - 130
1868-53-7	Dibromofluoromethane	50	57.4	ug/L	115	77 - 127
2037-26-5	Toluene d8	50	55	ug/L	110	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.4	ug/L	107	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 18:01	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091803	MW-8R	Water	06/06/2007 09:10	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 16:38	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.8	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	50	57.6	ug/L	115	77 - 127
2037-26-5	Toluene d8	50	55.9	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.5	ug/L	105	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 18:22	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091804	MW-9B	Water	06/06/2007 09:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 12:12	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4.20	1.00		ug/L
108-88-3	Toluene	12.6	1.00		ug/L
100-41-4	Ethylbenzene	2.03	1.00		ug/L
1330-20-7	Xylene (total)	9.39	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	54.2	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	50	56.6	ug/L	113	77 - 127
2037-26-5	Toluene d8	50	56.3	ug/L	113	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.6	ug/L	105	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 18:43	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091805	MW-12R	Water	06/05/2007 11:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			10	06/17/2007 12:24	JCK	351314

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	332	10.0		ug/L
108-88-3	Toluene	ND	10.0		ug/L
100-41-4	Ethylbenzene	ND	10.0		ug/L
1330-20-7	Xylene (total)	ND	30.0		ug/L
91-20-3	Naphthalene	ND	50.0		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	10.0		ug/L
107-06-2	1,2-Dichloroethane	ND	50.0		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	500	424	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	500	383	ug/L	77	77 - 127
2037-26-5	Toluene d8	500	491	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	500	393	ug/L	79	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 19:03	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091806	MW-14B	Water	06/05/2007 13:10	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/16/2007 12:35	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**2130**	**100**		**ug/L**
108-88-3	**Toluene**	**19700**	**100**		**ug/L**
100-41-4	**Ethylbenzene**	**4080**	**100**		**ug/L**
1330-20-7	**Xylene (total)**	**22400**	**300**		**ug/L**
91-20-3	**Naphthalene**	**866**	**500**		**ug/L**
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	100		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5330	ug/L	107	78 - 130
1868-53-7	Dibromofluoromethane	5000	5740	ug/L	115	77 - 127
2037-26-5	Toluene d8	5000	5610	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5270	ug/L	105	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 19:24	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091807	MW-15	Water	06/05/2007 14:20	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 12:57	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	50.5	1.00		ug/L
108-88-3	Toluene	10.7	1.00		ug/L
100-41-4	Ethylbenzene	1.95	1.00		ug/L
1330-20-7	Xylene (total)	11.5	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	49.6	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.1	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	50	57.1	ug/L	114	77 - 127
2037-26-5	Toluene d8	50	55.6	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.5	ug/L	105	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 19:45	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091808	MW-18R	Water	06/06/2007 12:20	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 13:20	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	**Toluene**	**1.77**	**1.00**		**ug/L**
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	52.6	ug/L	105	78 - 130
1868-53-7	Dibromofluoromethane	50	55.7	ug/L	111	77 - 127
2037-26-5	Toluene d8	50	55.9	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.8	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 20:05	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091809	MW-19R	Water	06/06/2007 15:00	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 13:42	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**54.7**	**1.00**		**ug/L**
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.8	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	50	57	ug/L	114	77 - 127
2037-26-5	Toluene d8	50	56.2	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 20:26	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091810	MW-20	Water	06/07/2007 09:10	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/16/2007 14:05	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	4570	100		ug/L
108-88-3	Toluene	17400	100		ug/L
100-41-4	Ethylbenzene	3010	100		ug/L
1330-20-7	Xylene (total)	15900	300		ug/L
91-20-3	Naphthalene	1230	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	147	100		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5320	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	5000	5790	ug/L	116	77 - 127
2037-26-5	Toluene d8	5000	5520	ug/L	110	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5400	ug/L	108	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 20:46	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091811	MW-20R	Water	06/07/2007 10:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/16/2007 14:27	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8750	100		ug/L
108-88-3	Toluene	13800	100		ug/L
100-41-4	Ethylbenzene	1490	100		ug/L
1330-20-7	Xylene (total)	6820	300		ug/L
91-20-3	Naphthalene	ND	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	973	100		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5290	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	5000	5790	ug/L	116	77 - 127
2037-26-5	Toluene d8	5000	5570	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5110	ug/L	102	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 21:27	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091812	MW-21	Water	06/05/2007 09:00	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 14:59	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	1.52	1.00		ug/L
108-88-3	Toluene	2.89	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.8	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	50	58.4	ug/L	117	77 - 127
2037-26-5	Toluene d8	50	55.3	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.9	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 21:48	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091813	MW-22	Water	06/05/2007 09:20	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 15:22	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**1.23**	**1.00**		**ug/L**
108-88-3	**Toluene**	**1.86**	**1.00**		**ug/L**
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.6	ug/L	107	78 - 130
1868-53-7	Dibromofluoromethane	50	56.6	ug/L	113	77 - 127
2037-26-5	Toluene d8	50	55.3	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.9	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/11/2007 10:00	350911	SW-846 8011	1	06/11/2007 22:08	SMH	351090

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091814	MW-22D	Water	06/07/2007 14:40	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 17:01	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3.20	1.00		ug/L
108-88-3	Toluene	8.20	1.00		ug/L
100-41-4	Ethylbenzene	1.24	1.00		ug/L
1330-20-7	Xylene (total)	6.01	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	52.9	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	50	56.5	ug/L	113	77 - 127
2037-26-5	Toluene d8	50	55.4	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.6	ug/L	107	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/14/2007 14:58	SMH	351213

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091815	MW-24	Water	06/07/2007 13:20	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 17:25	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	54.3	ug/L	109	78 - 130
1868-53-7	Dibromofluoromethane	50	56.6	ug/L	113	77 - 127
2037-26-5	Toluene d8	50	55.9	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.2	ug/L	106	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/14/2007 15:19	SMH	351213

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091816	MW-25	Water	06/05/2007 12:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 17:48	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	27.0	1.00		ug/L
108-88-3	Toluene	9.18	1.00		ug/L
100-41-4	Ethylbenzene	1.26	1.00		ug/L
1330-20-7	Xylene (total)	5.89	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	130	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	52.8	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	50	57.5	ug/L	115	77 - 127
2037-26-5	Toluene d8	50	54	ug/L	108	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.6	ug/L	107	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/14/2007 15:40	SMH	351213

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091817	MW-26	Water	06/06/2007 13:40	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			200	06/17/2007 10:39	JCK	351314

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	1730	200		ug/L
108-88-3	Toluene	8510	200		ug/L
100-41-4	Ethylbenzene	904	200		ug/L
1330-20-7	Xylene (total)	5720	600		ug/L
91-20-3	Naphthalene	ND	1000		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	200		ug/L
107-06-2	1,2-Dichloroethane	ND	1000		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	8700	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	10000	7860	ug/L	79	77 - 127
2037-26-5	Toluene d8	10000	9670	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	7970	ug/L	80	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/14/2007 16:00	SMH	351213

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091818	MW-27	Water	06/06/2007 11:00	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 18:10	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	52.5	ug/L	105	78 - 130
1868-53-7	Dibromofluoromethane	50	56.4	ug/L	113	77 - 127
2037-26-5	Toluene d8	50	54.6	ug/L	109	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	52.3	ug/L	105	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 18:06	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091819	PW-28	Water	06/07/2007 14:00	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 18:41	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8.74	1.00		ug/L
108-88-3	Toluene	10.4	1.00		ug/L
100-41-4	Ethylbenzene	1.30	1.00		ug/L
1330-20-7	Xylene (total)	6.63	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	54	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	50	57.5	ug/L	115	77 - 127
2037-26-5	Toluene d8	50	55.7	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	51.9	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 18:27	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	0.036	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091820	**MW-33**	Water	06/07/2007 14:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/16/2007 19:04	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	**Benzene**	**8.95**	**1.00**		ug/L
108-88-3	**Toluene**	**11.6**	**1.00**		ug/L
100-41-4	**Ethylbenzene**	**1.07**	**1.00**		ug/L
1330-20-7	**Xylene (total)**	**5.87**	**3.00**		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	53.4	ug/L	107	78 - 130
1868-53-7	Dibromofluoromethane	50	55.6	ug/L	111	77 - 127
2037-26-5	Toluene d8	50	56	ug/L	112	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	51.5	ug/L	103	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 18:47	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091821	PW-31	Water	06/07/2007 09:40	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/16/2007 19:26	ADI	351291

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	8640	100		ug/L
108-88-3	Toluene	13100	100		ug/L
100-41-4	Ethylbenzene	1380	100		ug/L
1330-20-7	Xylene (total)	6830	300		ug/L
91-20-3	Naphthalene	ND	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	1030	100		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5290	ug/L	106	78 - 130
1868-53-7	Dibromofluoromethane	5000	5700	ug/L	114	77 - 127
2037-26-5	Toluene d8	5000	5550	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5190	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 19:08	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091822	MW-32	Water	06/07/2007 11:00	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			100	06/17/2007 11:37	ADI	351322

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	13700	100		ug/L
108-88-3	Toluene	16000	100		ug/L
100-41-4	Ethylbenzene	2040	100		ug/L
1330-20-7	Xylene (total)	10100	300		ug/L
91-20-3	Naphthalene	872	500		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	2160	100		ug/L
107-06-2	1,2-Dichloroethane	ND	500		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	5000	5400	ug/L	108	78 - 130
1868-53-7	Dibromofluoromethane	5000	5840	ug/L	117	77 - 127
2037-26-5	Toluene d8	5000	5570	ug/L	111	76 - 134
17060-07-0	1,2-Dichloroethane-d4	5000	5190	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 19:28	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	0.142	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20706091823	MW-10R	Water	06/07/2007 12:30	06/09/2007 09:25

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	06/18/2007 19:06	KCB	351354

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	3.28	1.00		ug/L
108-88-3	Toluene	4.14	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	3.62	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	54.9	ug/L	110	78 - 130
1868-53-7	Dibromofluoromethane	50	38.4	ug/L	77	77 - 127
2037-26-5	Toluene d8	50	54.5	ug/L	109	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	53.5	ug/L	107	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
06/12/2007 11:00	350938	SW-846 8011	1	06/15/2007 19:48	SMH	351307

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GC/MS Volatiles Quality Control Summary

Analytical Batch	351282	Client ID	MB351282			LCS351282			LCSD351282			
Prep Batch	N/A	GCAL ID	497887			497888			497889			
		Sample Type	Method Blank			LCS			LCSD			
		Analytical Date	06/15/2007 22:36			06/15/2007 21:27			06/15/2007 21:49			
		Matrix	Water			Water			Water			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	ND	5.00	25.0	27.6	110	75 - 122		26.2	105	5	30
100-41-4	Ethylbenzene	ND	1.00	25.0	29.8	119	80 - 125		27.8	111	7	30
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00	25.0	26.6	106	72 - 127		25.4	102	5	30
1330-20-7	Xylene (total)	ND	3.00	75.0	88.1	117	80 - 129		82.8	110	6	30
91-20-3	Naphthalene	ND	5.00	25.0	28.2	113	67 - 149		27.6	110	2	30
71-43-2	Benzene	ND	1.00	25.0	26.8	107	80 - 120		26.2	105	2	11
108-88-3	Toluene	ND	1.00	25.0	28.7	115	80 - 124		26.7	107	7	13
Surrogate												
460-00-4	4-Bromofluorobenzene	52.9	106	50	54.3	109	78 - 130		53.6	107		
1868-53-7	Dibromofluoromethane	55.3	111	50	57.7	115	77 - 127		56.7	113		
2037-26-5	Toluene d8	55.8	112	50	58	116	76 - 134		56	112		
17060-07-0	1,2-Dichloroethane-d4	50.9	102	50	52.3	105	71 - 127		52.6	105		

Analytical Batch	351291	Client ID	MB351291			LCS351291			LCSD351291			
Prep Batch	N/A	GCAL ID	497908			497909			497910			
		Sample Type	Method Blank			LCS			LCSD			
		Analytical Date	06/16/2007 11:05			06/16/2007 09:48			06/16/2007 10:11			
		Matrix	Water			Water			Water			
SW-846 8260B		**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2	1,2-Dichloroethane	ND	5.00	25.0	25.5	102	75 - 122		25.3	101	0.8	30
100-41-4	Ethylbenzene	ND	1.00	25.0	27.5	110	80 - 125		27.2	109	1	30
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00	25.0	24.9	100	72 - 127		25.0	100	0.4	30
1330-20-7	Xylene (total)	ND	3.00	75.0	82.6	110	80 - 129		82.1	109	0.6	30
91-20-3	Naphthalene	ND	5.00	25.0	26.4	106	67 - 149		25.6	102	3	30
71-43-2	Benzene	ND	1.00	25.0	24.9	100	80 - 120		24.9	100	0	11
108-88-3	Toluene	ND	1.00	25.0	25.9	104	80 - 124		26.0	104	0.4	13
Surrogate												
460-00-4	4-Bromofluorobenzene	53.1	106	50	53.6	107	78 - 130		53.7	107		
1868-53-7	Dibromofluoromethane	57.9	116	50	57.5	115	77 - 127		56.8	114		
2037-26-5	Toluene d8	55.3	111	50	57.2	114	76 - 134		55.5	111		
17060-07-0	1,2-Dichloroethane-d4	52.2	104	50	54.4	109	71 - 127		52.2	104		

GC/MS Volatiles Quality Control Summary

Analytical Batch	351291	Client ID	MW-20R	495629MS	495629MSD
Prep Batch	N/A	GCAL ID	20706091811	498072	498073
		Sample Type	SAMPLE	MS	MSD
		Analytical Date	06/16/2007 14:27	06/16/2007 15:44	06/16/2007 16:10
		Matrix	Water	Water	Water

SW-846 8260B		Units	ug/L	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
107-06-2	1,2-Dichloroethane	0.00	500	2500	2640	106	75 - 122	2560	102	3	30
100-41-4	Ethylbenzene	1490	100	2500	4220	109	80 - 125	4050	102	4	30
1634-04-4	tert-Butyl methyl ether (MTBE)	973	100	2500	3320	94	72 - 127	3170	88	5	30
1330-20-7	Xylene (total)	6820	300	7500	15000	109	80 - 129	14400	101	4	30
91-20-3	Naphthalene	0.00	500	2500	3180	127	67 - 149	3150	126	0.9	30
71-43-2	Benzene	8750	100	2500	10900	86	80 - 120	10500	70*	4	30
108-88-3	Toluene	13800	100	2500	16000	88	80 - 124	15600	72*	3	30
Surrogate											
460-00-4	4-Bromofluorobenzene	5290	106	5000	5490	110	78 - 130	5480	110		
1868-53-7	Dibromofluoromethane	5790	116	5000	5770	115	77 - 127	5830	117		
2037-26-5	Toluene d8	5570	111	5000	5630	113	76 - 134	5720	114		
17060-07-0	1,2-Dichloroethane-d4	5110	102	5000	5210	104	71 - 127	5210	104		

Analytical Batch	351314	Client ID	MB351314	LCS351314
Prep Batch	N/A	GCAL ID	498074	498075
		Sample Type	Method Blank	LCS
		Analytical Date	06/17/2007 10:06	06/17/2007 09:00
		Matrix	Water	Water

SW-846 8260B		Units	ug/L Result	Spike Added	Result	% R	Control Limits % R
107-06-2	1,2-Dichloroethane	ND	5.00	25.0	25.5	102	75 - 122
100-41-4	Ethylbenzene	ND	1.00	25.0	26.0	104	80 - 125
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00	25.0	22.2	89	72 - 127
1330-20-7	Xylene (total)	ND	3.00	75.0	67.8	90	80 - 129
91-20-3	Naphthalene	ND	5.00	25.0	26.8	107	67 - 149
71-43-2	Benzene	ND	1.00	25.0	25.7	103	80 - 120
108-88-3	Toluene	ND	1.00	25.0	26.5	106	80 - 124
Surrogate							
460-00-4	4-Bromofluorobenzene	42.3	85	50	44.7	89	78 - 130
1868-53-7	Dibromofluoromethane	39.7	79	50	40.8	82	77 - 127
2037-26-5	Toluene d8	50.3	101	50	49.9	100	76 - 134
17060-07-0	1,2-Dichloroethane-d4	40.3	81	50	39.4	79	71 - 127

GC/MS Volatiles Quality Control Summary

Analytical Batch 351314	Client ID	MW-26			495635MS			495635MSD			
Prep Batch N/A	GCAL ID	20706091817			498094			498095			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	06/17/2007 10:39			06/17/2007 11:18			06/17/2007 11:40			
	Matrix	Water			Water			Water			
SW-846 8260B	**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2 1,2-Dichloroethane		203	1000	5000	5200	100	75 - 122	5000	96	4	30
100-41-4 Ethylbenzene		904	200	5000	5820	98	80 - 125	6030	103	4	30
1634-04-4 tert-Butyl methyl ether (MTBE)		0.00	200	5000	4530	91	72 - 127	4520	90	0.2	30
1330-20-7 Xylene (total)		5720	600	15000	17100	76*	80 - 129	17800	81	4	30
91-20-3 Naphthalene		518	1000	5000	5300	96	67 - 149	5690	103	7	30
71-43-2 Benzene		1730	200	5000	6100	87	80 - 120	6260	91	3	30
108-88-3 Toluene		8510	200	5000	9350	17*	80 - 124	9730	24*	4	30
Surrogate											
460-00-4 4-Bromofluorobenzene		8700	87	10000	8950	90	78 - 130	9050	91		
1868-53-7 Dibromofluoromethane		7860	79	10000	7960	80	77 - 127	7740	77		
2037-26-5 Toluene d8		9670	97	10000	9950	100	76 - 134	10000	100		
17060-07-0 1,2-Dichloroethane-d4		7970	80	10000	7970	80	71 - 127	7990	80		

Analytical Batch 351322	Client ID	MB351322			LCS351322			LCSD351322			
Prep Batch N/A	GCAL ID	498088			498089			498090			
	Sample Type	Method Blank			LCS			LCSD			
	Analytical Date	06/17/2007 11:15			06/17/2007 10:07			06/17/2007 10:29			
	Matrix	Water			Water			Water			
SW-846 8260B	**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2 1,2-Dichloroethane		ND	5.00	25.0	22.1	88	75 - 122	22.2	89	0.5	30
100-41-4 Ethylbenzene		ND	1.00	25.0	25.1	100	80 - 125	25.7	103	2	30
1634-04-4 tert-Butyl methyl ether (MTBE)		ND	1.00	25.0	20.8	83	72 - 127	20.5	82	1	30
1330-20-7 Xylene (total)		ND	3.00	75.0	76.9	103	80 - 129	77.7	104	1	30
91-20-3 Naphthalene		ND	5.00	25.0	24.6	98	67 - 149	24.0	96	2	30
71-43-2 Benzene		ND	1.00	25.0	22.1	88	80 - 120	21.3	85	4	11
108-88-3 Toluene		ND	1.00	25.0	23.0	92	80 - 124	23.1	92	0.4	13
Surrogate											
460-00-4 4-Bromofluorobenzene		53.3	107	50	52.2	104	78 - 130	56.2	112		
1868-53-7 Dibromofluoromethane		58.1	116	50	58.7	117	77 - 127	57.1	114		
2037-26-5 Toluene d8		56.1	112	50	56.7	113	76 - 134	57.5	115		
17060-07-0 1,2-Dichloroethane-d4		52.5	105	50	52.3	105	71 - 127	52.7	105		

GC/MS Volatiles Quality Control Summary

Analytical Batch 351354	Client ID	MB351354			LCS351354			LCSD351354			
Prep Batch N/A	GCAL ID	498221			498222			498224			
	Sample Type	Method Blank			LCS			LCSD			
	Analytical Date	06/18/2007 12:06			06/18/2007 09:13			06/18/2007 09:36			
	Matrix	Water			Water			Water			
SW-846 8260B	**Units**	ug/L	**Spike Added**	**Result**	**Result**	**% R**	**Control Limits % R**	**Result**	**% R**	**RPD**	**RPD Limit**
107-06-2 1,2-Dichloroethane	ND	5.00	25.0	23.0	92	75 - 122	22.7	91	1	30
100-41-4 Ethylbenzene	ND	1.00	25.0	26.1	104	80 - 125	25.7	103	2	30
1634-04-4 tert-Butyl methyl ether (MTBE)	ND	1.00	25.0	20.6	82	72 - 127	21.6	86	5	30
1330-20-7 Xylene (total)	ND	3.00	75.0	80.3	107	80 - 129	77.4	103	4	30
91-20-3 Naphthalene	ND	5.00	25.0	25.7	103	67 - 149	25.5	102	0.8	30
71-43-2 Benzene	ND	1.00	25.0	22.6	90	80 - 120	22.6	90	0	11
108-88-3 Toluene	ND	1.00	25.0	23.5	94	80 - 124	23.1	92	2	13
Surrogate										
460-00-4 4-Bromofluorobenzene	54	108	50	52.4	105	78 - 130	53.3	107		
1868-53-7 Dibromofluoromethane	59.4	119	50	59.2	118	77 - 127	56	112		
2037-26-5 Toluene d8	56.2	112	50	54.6	109	76 - 134	55	110		
17060-07-0 1,2-Dichloroethane-d4	55.6	111	50	54.2	108	71 - 127	54.5	109		

General Chromatography Quality Control Summary

Analytical Batch	351090	Client ID	MB350911			LCS350911			LCSD350911			
Prep Batch	350911	GCAL ID	495841			495842			495843			
Prep Method	SW-846 8011	Sample Type	Method Blank			LCS			LCSD			
		Prep Date	06/11/2007 10:00			06/11/2007 10:00			06/11/2007 10:00			
		Analytical Date	06/11/2007 13:52			06/11/2007 14:12			06/11/2007 14:33			
		Matrix	Water			Water			Water			
SW-846 8011		Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
106-93-4	1,2-Dibromoethane		ND	0.010	1.13	1.14	101	62 - 140	1.11	99	3	40

Analytical Batch	351090	Client ID	37MW2070608			37MW2070608 MS			37MW2070608 MSD			
Prep Batch	350911	GCAL ID	20706091904			20706091905			20706091906			
Prep Method	SW-846 8011	Sample Type	SAMPLE			MS			MSD			
		Prep Date	06/11/2007 10:00			06/11/2007 10:00			06/11/2007 10:00			
		Analytical Date	06/11/2007 14:54			06/11/2007 15:14			06/11/2007 15:35			
		Matrix	Water			Water			Water			
SW-846 8011		Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
106-93-4	1,2-Dibromoethane		0.00	0.010	1.13	1.05	93	62 - 140	1.07	95	2	40

Analytical Batch	351213	Client ID	MB350938			LCS350938			LCSD350938			
Prep Batch	350938	GCAL ID	495932			495933			495934			
Prep Method	SW-846 8011	Sample Type	Method Blank			LCS			LCSD			
		Prep Date	06/12/2007 11:00			06/12/2007 11:00			06/12/2007 11:00			
		Analytical Date	06/14/2007 13:56			06/14/2007 14:17			06/14/2007 14:38			
		Matrix	Water			Water			Water			
SW-846 8011		Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
106-93-4	1,2-Dibromoethane		ND	0.010	1.07	1.01	95	62 - 140	1.05	95	4	40

Access Analytical - Chain of Custody Record

Access 14565 / 20706091 8/6-13-07

Project Submission # 7304-8013 **PO #** * **Laboratory ID:**

Company Name: Terracon
Report To: Mike Hudgins
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Phone: 803-741-9000 Fax:
Email:
Project Name: SC-576
Sampled By (print): William Walker

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	Preservative (*see codes below)	↓REQUESTED LAB ANALYSIS↓ BTEX, MtBE, 1,2DCA	EDB						NOTES / COMMENTS
MW-6	6/5/07	1520	L	4		2	2						1
MW-7B	6/5/07	1040											2
MW-8R	6/6/07	910											3
MW-9B	6/6/07	930											4
MW-12R	6/5/07	1130											5
~~MW-13R~~	~~6/5/07~~												No Sample Taken
MW-14B	6/5/07	1310											6
MW-15	6/5/07	1420											7
MW-18R	6/6/07	1220											8
MW-19R	6/6/07	1500											9

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

ACCESS
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Turnaround Time:
✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice? ✓ Yes ___ No

Project Location: ✓ SC ___ NC ___ Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
	6/8/07	0815	Christy Rawls
Christy Rawls	6/8/07	1700	FedEx
Fedex	6-9-07	925	MC

* added per client 8/3/07

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Access Analytical - Chain of Custody Record

Access/4565/20070610/6-13-07

Project Submission # 7304-8013 **PO #** * **Laboratory ID:**

Company Name: Terracon
Report To: Mike Hudgins
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Phone: 803-741-9000 Fax:
Email:
Project Name: SC-596
Sampled By (print): William Walker

Preservative (*see codes below)

REQUESTED LAB ANALYSIS: ↓

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	BTEX, Naph, MTBE, 1,2 DCA	EDB
MW-20	6/7/07	910	L	4	2	2
MW-20R	6/7/07	1030				
MW-21	6/5/07	900				
MW-22	6/5/07	920				
MW-22D	6/7/07	1440				
MW-24	6/7/07	1320				
MW-25	6/5/07	1230				
MW-26	6/6/07	1340				
MW-27	6/6/07	1100				
PW-28	6/7/07	1400	↓	↓	↓	↓

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

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Irmo, SC 29063
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Fax: 781-4303
Toll Free (888) 315-4243
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NOTES / COMMENTS

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Turnaround Time:
✓ Std. (5-7 Bus. days)
___RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
✓ Yes
___No

Project Location:
✓ SC
___NC
___Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	6/8/07	0815	Christy Rayfield
Christy Rayfield	6/8/07	1700	FedEx
FedEx	6-9-07	925	ML

Pg 2 of 3

*added per client 8/3/07

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Access/4565/20706091616-13 07

Project Submission # 7804-8013 **PO #** _____ **Laboratory ID:** _____

Company Name:	Terracon
Report To:	Mike Hudgins
Address:	521 Clemson Rd
City:	Columbia State: SC Zip: 29229
Phone:	803-741-9000 Fax:
Email:	
Project Name:	SC-576
Sampled By (print):	William Walker

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	Preservative (*see codes below)	REQUESTED LAB ANALYSIS: BTEX, Naph, MTBE, 1,2 DCA*	EDB						
MW-3+ 33	6/7/07	1430	L	4		2	2						20
PW-31	6/7/07	940											21
MW-32	6/7/07	1100											22
MW-10R	6/7/07	1230											23

*Preservative Codes (place corresponding # in block above, analysis field): 0=None, 1=HCL, 2=HNO3, 3=H2SO4, 4=NaOH, 5=Na2S2O3, 6=NaHSO4, Other=Specify

ACCESS ANALYTICAL, INC.

7478 Carlisle Street
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

NOTES / COMMENTS

Turnaround Time:
- ✓ Std. (5-7 Bus. days)
- ___ RUSH*

*Date Required: _____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
- ✓ Yes
- ___ No

Project Location:
- ✓ SC
- ___ NC
- ___ Other _____ (specify)

Relinquished By:	Date:	Time:	Received By:
	0815	6/8/07	Christy Rayfield
Christy Rayfield	6/8/07	1700	Fedex
Fedex	6-9-07	915	WC

Pg 3 of 3

* Added per client 8/3/07

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ANALYTICAL REPORT

CLIENT
Terracon
521 Clemson Rd
Columbia, SC 29205

ATTENTION
Mike Hudgins

PROJECT ID
Terracon-McCormick

LABORATORY REPORT NUMBER
207072526

DATE
07/31/2007

Primary Data Review By

Curtis Ekker
Data Validation Manager, GCAL

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 GSRI Rd. Baton Rouge, LA 70820.**
- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**
- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

CASE NARRATIVE

Client: Terracon **Report:** 207072526

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

SEMI-VOLATILES GAS CHROMATOGRAPHY

In the 8011 analysis for prep batch 353997, no MS/MSD was performed due to insufficient sample volume. All LCS/LCSD recoveries and RPDs were acceptable.

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified RDL
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates an estimated value
U	Indicates the compound was analyzed for but not detected
B	(ORGANICS) Indicates the analyte was detected in the associated Method Blank
B	(INORGANICS) Indicates the result is between the RDL and MDL

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with ISO Guide 25 and NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

CURTIS EKKER
DATA VALIDATION MANAGER
GCAL REPORT 207072526

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20707252601	MW-9B	Water	07/24/2007 13:00	07/25/2007 09:05
20707252602	MW-29	Water	07/24/2007 13:50	07/25/2007 09:05
20707252603	MW-30	Water	07/24/2007 14:10	07/25/2007 09:05

Summary of Compounds Detected

There were no detects

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20707252601	MW-9B	Water	07/24/2007 13:00	07/25/2007 09:05

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	07/25/2007 17:47	AEL	353806

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.7	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	50.5	ug/L	101	77 - 127
2037-26-5	Toluene d8	50	43.2	ug/L	86	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	51.9	ug/L	104	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
07/29/2007 18:00	353997	SW-846 8011	1	07/30/2007 12:15	SMH	354173

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20707252602	MW-29	Water	07/24/2007 13:50	07/25/2007 09:05

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	07/25/2007 18:09	AEL	353806

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.7	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	51.1	ug/L	102	77 - 127
2037-26-5	Toluene d8	50	43.5	ug/L	87	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.7	ug/L	101	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
07/29/2007 18:00	353997	SW-846 8011	1	07/30/2007 12:36	SMH	354173

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
20707252603	MW-30	Water	07/24/2007 14:10	07/25/2007 09:05

SW-846 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
			1	07/25/2007 18:31	AEL	353806

CAS#	Parameter	Result	RDL	REG LIMIT	Units
71-43-2	Benzene	ND	1.00		ug/L
108-88-3	Toluene	ND	1.00		ug/L
100-41-4	Ethylbenzene	ND	1.00		ug/L
1330-20-7	Xylene (total)	ND	3.00		ug/L
91-20-3	Naphthalene	ND	5.00		ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	ND	1.00		ug/L
107-06-2	1,2-Dichloroethane	ND	5.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	44.5	ug/L	89	78 - 130
1868-53-7	Dibromofluoromethane	50	51.3	ug/L	103	77 - 127
2037-26-5	Toluene d8	50	43.9	ug/L	88	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.7	ug/L	101	71 - 127

SW-846 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analyzed	By	Analytical Batch
07/29/2007 18:00	353997	SW-846 8011	1	07/30/2007 12:57	SMH	354173

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-93-4	1,2-Dibromoethane	ND	0.010		ug/L

GC/MS Volatiles Quality Control Summary

Analytical Batch 353806	Client ID	MB353806			LCS353806			LCSD353806			
Prep Batch N/A	GCAL ID	510670			510671			510673			
	Sample Type	Method Blank			LCS			LCSD			
	Analytical Date	07/25/2007 11:22			07/25/2007 09:53			07/25/2007 10:15			
	Matrix	Water			Water			Water			
SW-846 8260B	Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
107-06-2 1,2-Dichloroethane		ND	5.00	25.0	23.6	94	75 - 122	23.9	96	1	30
100-41-4 Ethylbenzene		ND	1.00	25.0	22.8	91	80 - 125	22.0	88	4	30
1634-04-4 tert-Butyl methyl ether (MTBE)		ND	1.00	25.0	23.9	96	72 - 127	24.2	97	1	30
1330-20-7 Xylene (total)		ND	3.00	75.0	68.4	91	80 - 129	67.6	90	1	30
91-20-3 Naphthalene		ND	5.00	25.0	23.0	92	67 - 149	23.7	95	3	30
71-43-2 Benzene		ND	1.00	25.0	23.2	93	80 - 120	23.1	92	0.4	11
108-88-3 Toluene		ND	1.00	25.0	20.9	84	80 - 124	20.4	82	2	13
Surrogate											
460-00-4 4-Bromofluorobenzene		45.5	91	50	45.7	91	78 - 130	45.4	91		
1868-53-7 Dibromofluoromethane		48.6	97	50	48.9	98	77 - 127	49.2	98		
2037-26-5 Toluene d8		44	88	50	44	88	76 - 134	43.6	87		
17060-07-0 1,2-Dichloroethane-d4		46.4	93	50	46.1	92	71 - 127	46.5	93		

Analytical Batch 353806	Client ID	LATEX SUMP (TCLP)			509463MS			509463MSD			
Prep Batch N/A	GCAL ID	20707204802			511020			511021			
	Sample Type	SAMPLE			MS			MSD			
	Analytical Date	07/25/2007 14:28			07/25/2007 15:34			07/25/2007 15:56			
	Matrix	Solid			Solid			Solid			
SW-846 8260B	Units	ug/L	Spike Added	Result	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
107-06-2 1,2-Dichloroethane		0.00	200	1000	963	96	76 - 125	964	96	0.1	30
71-43-2 Benzene		0.00	40.0	1000	904	90	80 - 120	895	90	1	21
Surrogate											
460-00-4 4-Bromofluorobenzene				2000	1800	90	62 - 127	1780	89		
1868-53-7 Dibromofluoromethane				2000	2040	102	65 - 130	2010	101		
2037-26-5 Toluene d8				2000	1730	87	71 - 132	1720	86		
17060-07-0 1,2-Dichloroethane-d4				2000	2020	101	62 - 125	2000	100		

General Chromatography Quality Control Summary

Analytical Batch 354173	**Client ID**	MB353997	LCS353997	LCSD353997	
Prep Batch 353997	**GCAL ID**	511725	511726	511727	
Prep Method SW-846 8011	**Sample Type**	Method Blank	LCS	LCSD	
	Prep Date	07/29/2007 18:00	07/29/2007 18:00	07/29/2007 18:00	
	Analytical Date	07/30/2007 11:13	07/30/2007 11:34	07/30/2007 11:54	
	Matrix	Water	Water	Water	

SW-846 8011		**Units**	ug/L	**Spike Added**	**Result**	**Result % R**	**Control Limits**	**Result**	**% R**	**RPD**	**RPD Limit**
106-93-4	1,2-Dibromoethane	ND	0.010	1.06	1.10	104	62 - 140	1.15	109	4	40

Access Analytical - Chain of Custody Record

Access/4565/20070725-26/7.30-07

Project Submission #: 7304-8013 PO #: Laboratory ID:

Company Name: Terracon
Report To: Mike Hudgins
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Phone: 803-741-9000 Fax:
Email:
Project Name: McCormick
Sampled By (print): William Walker

Sample ID	Date Collected	Time Collected	Matrix	# of Cont.	ANALYSES REQUESTED: BTEX, MtBE, 12 DCA	EDB
MW-9B	7/24/07	1300	L	4	2	2
MW-29	"	1350	"	"	"	"
MW-30	"	1410	"	"	"	"

Preservation Codes (place corresponding # in block above): 0=None, 1=HCL, 2=HNO3, 3=H2SO4, 4=NaOH, 5=Na2S2O3, 6=NaHSO4, Other=Specify

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7428 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
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Turnaround Time:
✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice? ✓ Yes ___ No

Project Location: ✓ SC ___ NC ___ Other_____ (specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	7/24/07	1620	Christy Rakestraw
Christy Rakestraw	7/24/07	1700	FedEx
FedEx	7-25-07	905	MK

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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 800-522-9175	4. Waste Tracking Number 26781

GENERATOR

5. Generator's Name and Mailing Address
Crown Petroleum
c/o Terracon, 521 Clemson Rd.
Columbia, SC 29229
Generator's Phone: 803 741-9000

Generator's Site Address (if different than mailing address)
Crown Petroleum
201 E. Mine St.
McCormick, SC .

6. Transporter 1 Company Name
Rumpy Industrial Services, Inc.
U.S. EPA ID Number SCD 987598331

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Vopak - Mauldin
305 South Main St.
Mauldin, SC 29662
Facility's Phone: 864-962-9953
U.S. EPA ID Number SCR000762468

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-Hazardous/Non-Regulated Material Soil cuttings Profile # 6451 1020-0551	8	DM	160	P	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
Job # 2007-316 Contact at Terracon: Regan Morris 803-741-9000

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name P. Michael Hutchins (on behalf of Crown Central LLC) Signature Month 07 Day 16 Year 07

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

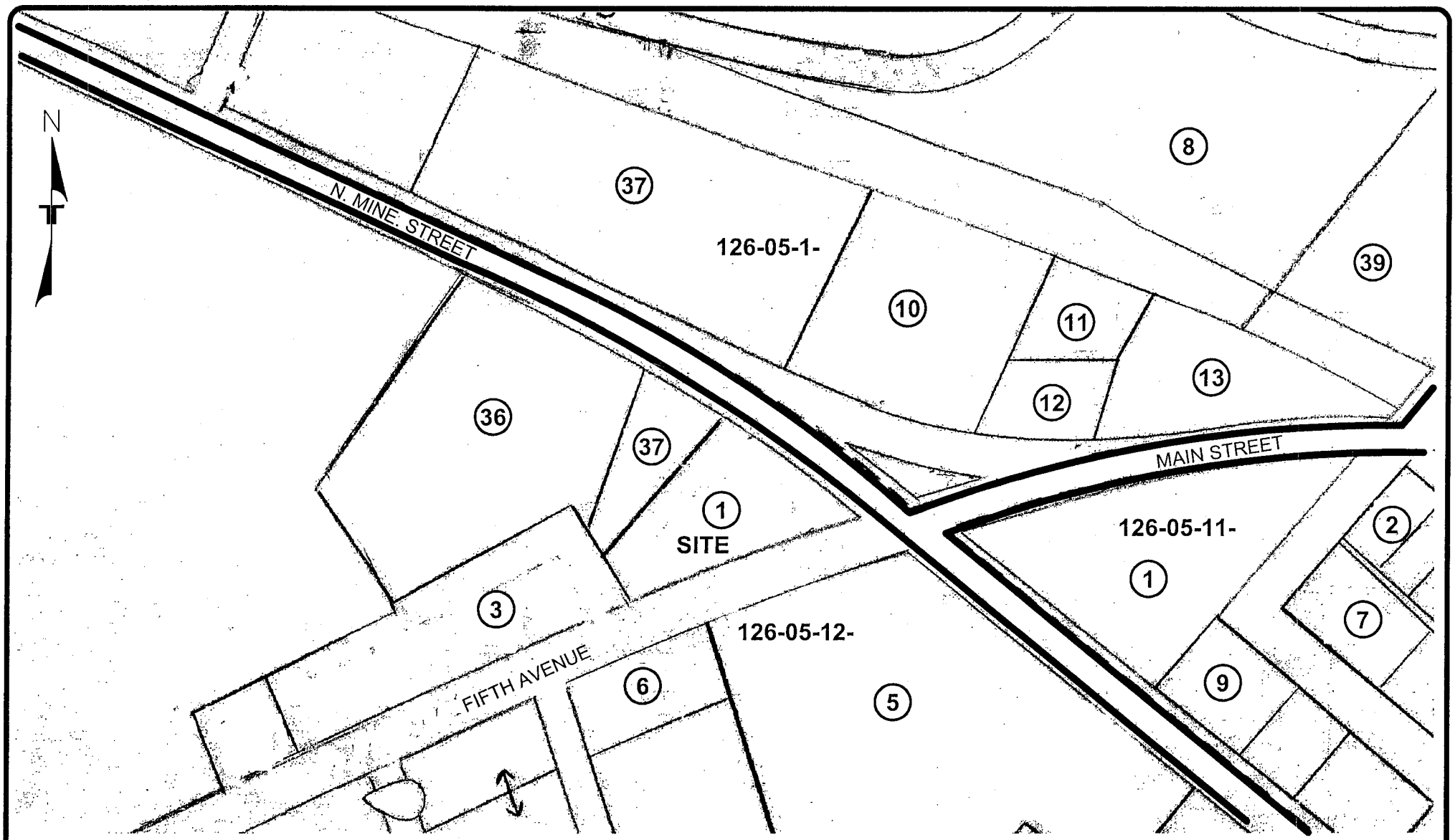
TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name Signature Month Day Year
Transporter 2 Printed/Typed Name Signature Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name Signature Month Day Year



GRAPHIC SCALE

150 0 150

(FEET)

DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TAX MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr: PMH	Terracon	Project No.	73048013
Designed By: CB		Scale:	1 IN = 150 FT
Checked By: CB	521 Clemson Road Columbia, South Carolina 29229	Date:	8-24-07
Approved By: CRC		Drawn By:	PTK
File Name: \73048013 Fig 2.dwg L(Tax Map)		Figure No.	6

TAX MAP TABLE

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
Terracon Project No. 73048013

TAX MAP NO.	PROPERTY OWNER	OWNER ADDRESS	PROPERTY USE	PROPERTY LOCATION
126-05-1-8	McCormick County	362 Airport Road McCormick, SC 29835	County Library	Railroad Ave.
126-05-1-10	McCormick County	362 Airport Road McCormick, SC 29835	Health Department	North Mine St.
126-05-1-11	McCormick County Historical Commision	PO Box 1498 McCormick, SC 29835	Historic Dorn Grist Mill	North Mine St.
126-05-1-12	West, Gerald W. & Kathryn	906 Garrison St McCormick, SC 29835	Willis Chainsaw Shop	Main St.
126-05-1-13	McCormick County Historical Commision	PO Box 1498 McCormick, SC 29835	Dorn Mill Center For History & Art	Main St.
126-05-1-37	Ward, Gary P.	1107 Washington Highway Lincolnton, Ga 30817	undeveloped	North Mine St.
126-05-1-39	Pollow, Pearl	5676 Walnut Grove Place, Memphis, Tn 38120	U.S. Post Office	Virginia St.
126-05-11-1	Carolina Tool Co. Inc. of Greenwood	PO Box 839 Greenwood, SC 29648	Napa Auto Parts	Main St.
126-05-11-2	Brown Investment Co.	PO Box 188 McCormick, SC	undeveloped	Cedar St.
126-05-11-7	Smith, James Michael	5231 SC Highway 28 N McCormick, SC 29835	undeveloped	Cedar St.
126-05-11-9	Pressley Mem. ARP Church (c/o Wilma Flanigan)	965 Holiday Road McCormick, SC	undeveloped	North Mine St.
126-05-12-1	Fast Point Food Store, Inc.	2811 Reidville Road Spartanburg, SC 29301	**SITE**	North Mine St.
126-05-12-3	New, Oscar M. and Shirley C.	PO Box 121 McCormick, SC 29835	residential	Fifth Ave.
126-05-12-5	The Bowick Agency, Inc (c/o Debbie Bowick)	208 Hatton Ct. Lexington, SC 29072	residential and commercial (Habitat for Humanity Store, Video	North Mine St.
126-05-12-6	Passafero, Henry H. and Rose Lieta	PO Box. 1808 McCormick, SC 29835	undeveloped	Fifth Ave.
126-05-12-36	Oham Shanti Inc.	208 North Mine Street McCormick, SC 29835	closed Exxon Gas Station	North Mine St.
126-05-12-37	Brewer, D. Ansel; Greenwood Finacial Services	PO Box 1746 McCormick, SC	car dealership	North Mine St.

Report of Monitoring Well Installation and Gauging

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA

UST PERMIT # 06443

March 23, 2011
Terracon Project No. 73058013

Prepared for:
Crown Central LLC
P.O. Box 1168
Baltimore, Maryland 21203

Prepared by:
Terracon Consultants, Inc.
Columbia, South Carolina

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

March 23, 2011

Mr. Justin Koon
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Monitoring Well Installation and Product Gauging***
One Stop (Former SC-576)
201 N. Mine Street, McCormick, South Carolina
UST Permit # 06443; CA # 38954
Terracon Project No. 73058013

Dear Mr. Koon:

On behalf of Crown Central LLC, **Terracon Consultants, Inc** is pleased to submit this report of Monitoring Well Installation and Well Gauging for the One Stop (former SC-576) facility located at 201 North Mine Street in McCormick, South Carolina. This report summarizes the well installation and product gauging activities, and our findings, conclusions, and recommendations.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.
UST Contractor Certification No. 246

Regan W. Norris
Staff Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist

Attachment

cc: Jim Janson / Crown Central LLC

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY
MONITORING WELL INSTALLATION AND WELL GAUGING

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

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1.2 Facility History	1
3.0 MONITORING WELL INSTALLATION	2
4.0 GROUND WATER GAUGING FOR PRODUCT	3
5.0 CONCLUSIONS AND RECOMMENDATIONS	3

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1 Site Location Map
2 Site Map
3 Free Product Delineation Map

TABLES

1 Free Product Thicknesses Data (Recorded 1/24/11)
2 Historical Ground Water Elevation Data

APPENDIX

A Geologist Logs and Water Well Records
B Disposal Manifests

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed well installation and gauging at the One Stop (former SC-576) facility, 201 N. Mine Street, McCormick, South Carolina. This work was performed in accordance with SCDHEC Cost Proposal No. 38954 and the SUPERB Allowable Costs document dated December 12, 2007. The purpose of the well installation was to define the extent of free product at the site.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout and surrounding well network is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 200 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Eleven AVFR events were performed at this site from December 2007 to October 2009 to remove free-phase product from the subsurface. A total of approximately 8,183 pounds of volatile organic compounds (VOCs) were removed from the subsurface during these events.

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 11 events performed as part of this scope of work, approximately 8,200 pounds of VOCs have been removed from the subsurface. Free product thicknesses has been removed or has decreased in three of the AFVR/monitoring wells (MW-1, MW-4, and MW-32), has remained the same in three wells (MW-2, MW-20/20R), and has increased in one well (MW-5). This increase may be the result of mobilizing product toward the well with the AFVR. Terracon recommended additional AFVR events to remove petroleum hydrocarbons from the area around the UST system (MW-5), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program.

In May 2010, the SCDHEC requested installation of downgradient shallow monitoring wells to further define the extent of free product at the site, followed by a product gauging event approximately 30 days later. This report includes a summary of the field methods utilized along with the ground water elevation measurements, field analytical results, and our conclusions and recommendations.

3.0 MONITORING WELL INSTALLATION

The scope of work included installation of ten shallow monitoring wells to further define the limits of free product in the upper portion of the shallow aquifer. All drilling and well installation was performed by a South Carolina Certified Well Driller per the South Carolina Well Standards R.61-71. The geologist logs for the borings and water well records (SCDHEC 1903 form), as compiled by the certified driller, are included in Appendix A.

Monitoring wells MW-35 through MW-41 were located in areas of previously identified product, as directed by the SCDHEC. Following provides rationale for the well locations:

Well No.	Rationale
MW-35	Upgradient from product detected at RW-1
MW-36	Side gradient from product detected at MW-4/4R
MW-37 MW-38 MW-39	Side gradient and downgradient from product detected at MW-14/14B
MW-40 MW-41	Downgradient from product detected at MW-32
MW-42 MW-43 MW-44	Downgradient from product detected at MW-20

The boring for all wells were initially drilled using 4.25-inch diameter hollow stem augers equipped with a 8-1/4 -inch auger bit to depths ranging from 8 feet to 45 feet. The soil cuttings were logged in the field by the on-site Geologist.

The wells were installed as single-cased shallow wells using 2-inch schedule 40 PVC casing with 15 feet of 0.010-inch slotted screen. An appropriately graded sand filter pack was placed within the annulus opposite the well screens approximately two feet above the top of the screen. A minimum one-foot bentonite pellet layer was placed above the sand filter pack and hydrated. The remaining annulus was grouted to land surface with cement grout. The wells were completed below-grade within steel protective manhole covers, and a 2x2 foot concrete pad was constructed around each well. Well construction details are included on the Geologist Logs and on Table 1.

After installation, the well was developed by bailing or pumping until the pH and specific conductivity of the water had stabilized and the wells were producing relatively clear water or the well ran dry. Soil cuttings generated during well drilling and installation were collected in 55-gallon drums and disposed by TK Tank Services, Inc, Sumter, South Carolina. The disposal manifest is included in Appendix B.

The top of casing (TOC) elevations and well locations were surveyed by Terracon personnel, referenced to existing monitoring wells. The TOC elevations are included on Table 1.

Partially weathered rock/auger refusal was encountered at a depth of 30 feet during drilling MW-39. No water entered the boring after approximately 8 hours. The borehole was abandoned with auger cuttings, and was offset approximately 5 feet and drilled using air rotary methods. Auger refusal was also identified at MW-36 (18 feet) and MW-40 (10 feet) and were re-drilled with air. A total of 58 feet of borings were drilled with augers, abandoned, and re-drilled with air rotary methods. Water Well records/abandonment logs as completed by the registered driller are included in Appendix A.

4.0 GROUND WATER GAUGING FOR PRODUCT

On January 24, 2011, approximately 30 days after new well installation, product/water levels were measured in existing site monitoring wells using an electric oil and water interface meter. A total of 24 wells gauged and/or sampled as part of this assessment according to the assessment directive. Ten wells had measurable thicknesses of free product, including the new wells MW-36, MW-38, and MW-39. A summary of the product/water level data recorded for this gauging event is presented as Table 1. Other wells found to contain product for this event product all have had product identified previously. Monitoring well MW-5 appears to contain an obstruction which prevented well gauging. Approximately one foot of product was previously identified in MW-5. A historical summary of free product thicknesses and ground water elevation data is included as Table 2.

Inspection of Table 1 indicated free product was measured at thicknesses ranging from 0.01 ft. to approximately 1 ft. (MW-39) in monitoring wells gauged for this event. Approximately 4.5 ft. of product was encountered at recovery well RW-4. A site map showing the estimated extent of free product at the site is included as Figure 3.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties have been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former UST system. The extent of the free product plume has

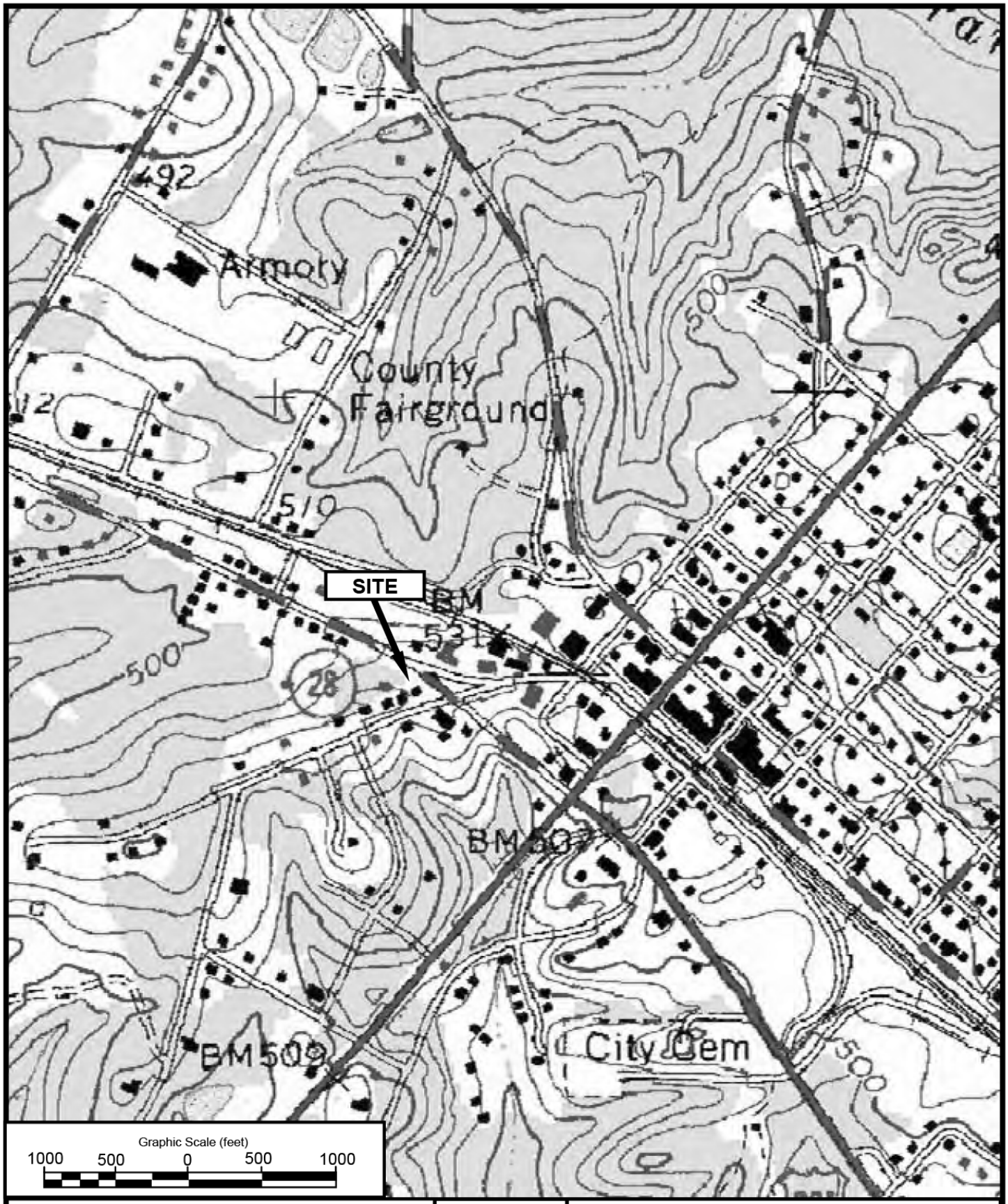
been defined by the monitoring well network. The product extends offsite approximately 300 feet downgradient of the source area, and is approximately one foot or less in thickness. A thickness of 4.5 feet measured in recovery well RW-4 is likely the result of over-accumulation in this well.

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 11 events performed previously, approximately 8,200 pounds of VOCs have been removed from the subsurface. Free product thicknesses has been removed or has decreased in three of the AFVR/monitoring wells (MW-1, MW-4, and MW-32), has remained the same in three wells (MW-2, MW-20/20R). This increase may be the result of mobilizing product toward the well with the AFVR.

Terracon recommends additional AFVR events to remove petroleum hydrocarbons from the area around the UST system (MW-5, RW-4), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program. Additionally, monitoring well MW-5 should be cleared/repaired for use as a viable well.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 3 – Free Product Delineation Map



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET

PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

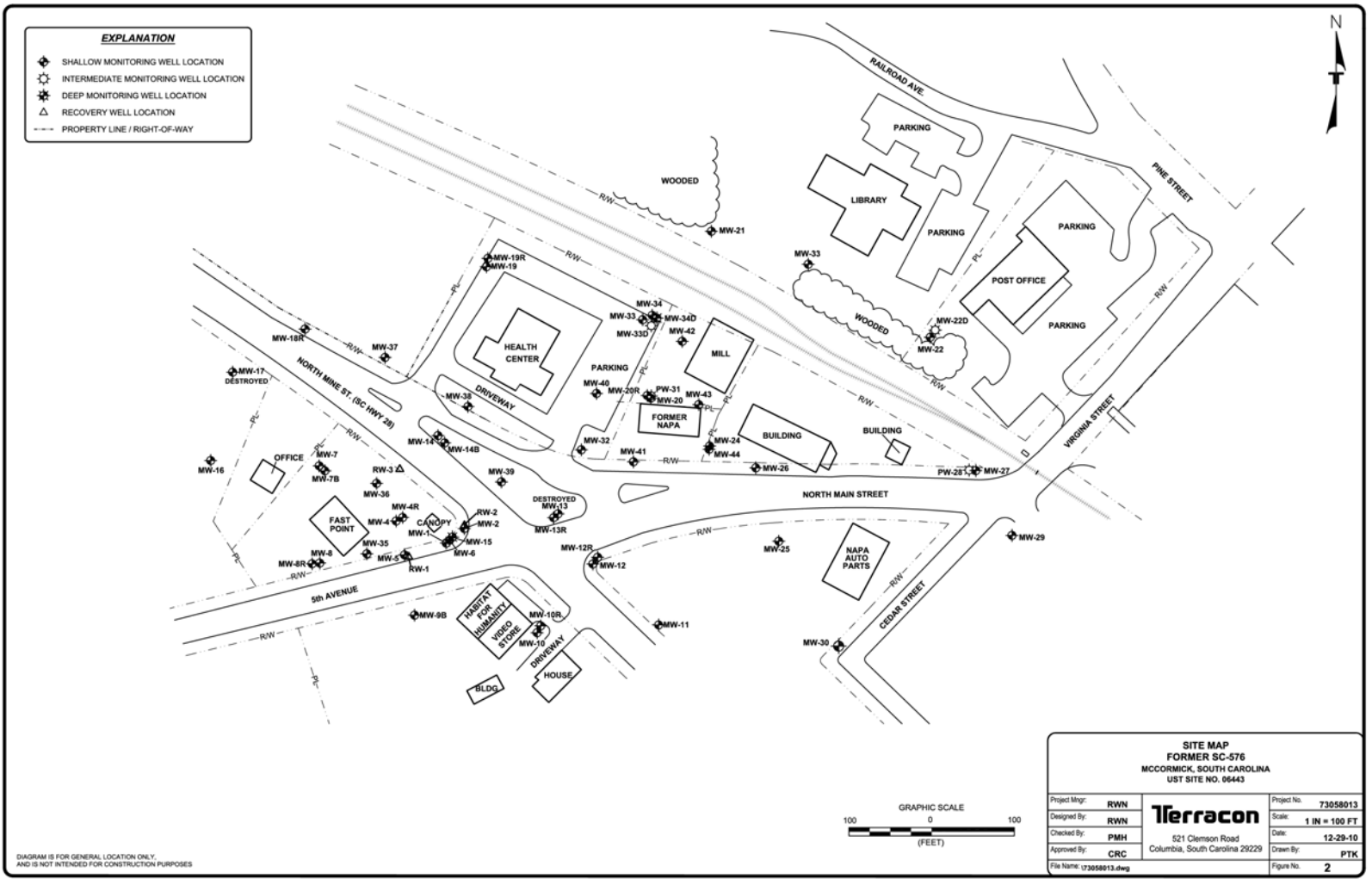
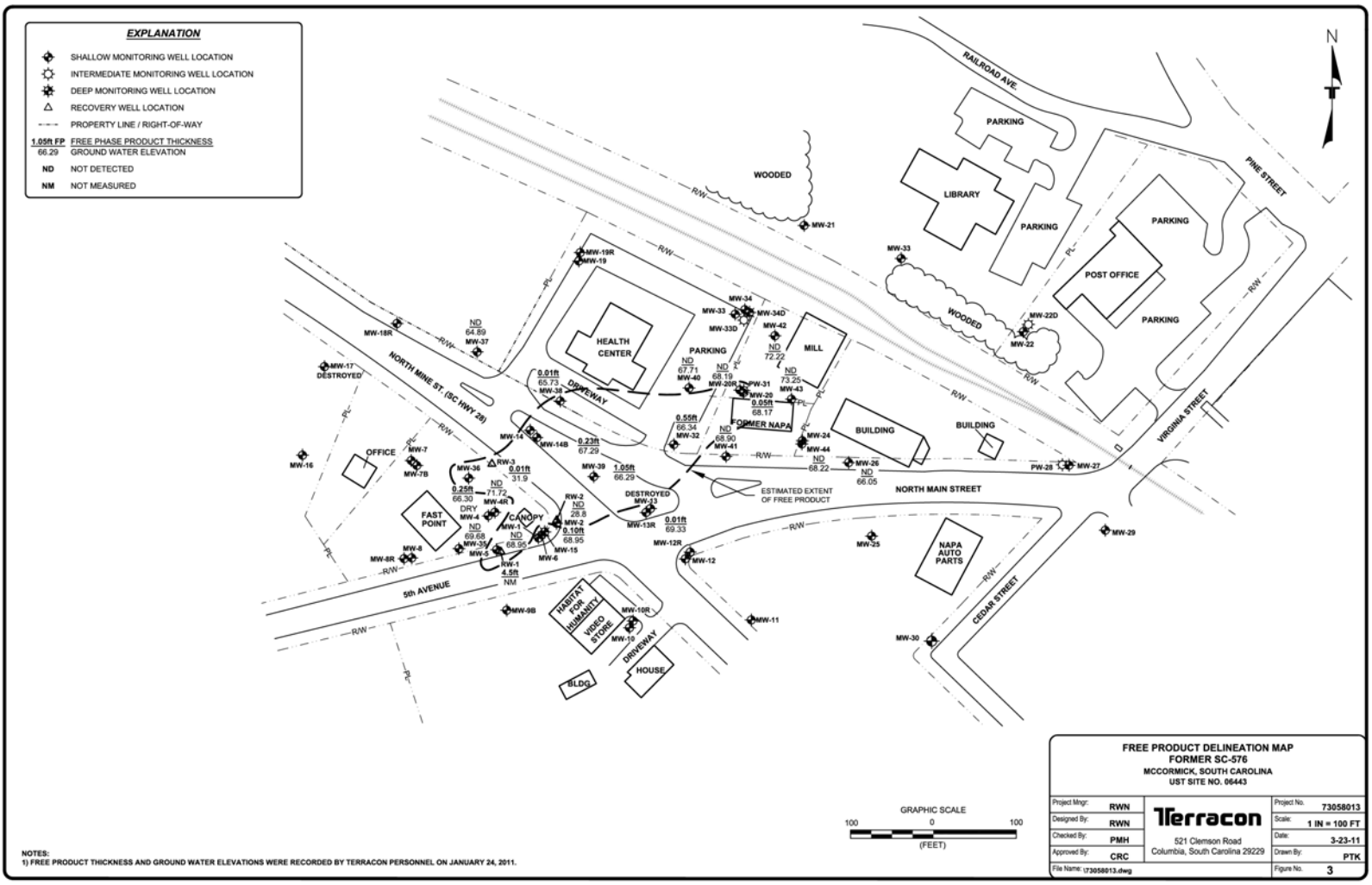


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	RWN	Terracon	Project No. 73058013
Designed By:	RWN		Scale: 1 IN = 100 FT
Checked By:	PMH	521 Clemson Road Columbia, South Carolina 29229	Date: 12-29-10
Approved By:	CRC		Drawn By: PTK
File Name: I73058013.dwg			Figure No. 2



GRAPHIC SCALE
100 0 100
(FEET)

FREE PRODUCT DELINEATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	RWN	Project No.	73058013
Designed By:	RWN	Scale:	1 IN = 100 FT
Checked By:	PMH	Date:	3-23-11
Approved By:	CRC	Drawn By:	PTK
File Name: I73058013.dwg		Figure No.	3

Terracon
521 Clemson Road
Columbia, South Carolina 29229

NOTES:
1) FREE PRODUCT THICKNESS AND GROUND WATER ELEVATIONS WERE RECORDED BY TERRACON PERSONNEL ON JANUARY 24, 2011.

TABLES

Table 1 – Free Product Thicknesses Data (Recorded 1/24/11)
Table 2 – Historical Ground Water Elevation Data

TABLE 1
FREE PRODUCT THICKNESS DATA
Measurements Recorded January 24, 2011
One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	1/24/11	20-30	100.03	ND	18.92	ND	81.11
MW-2	1/24/11	20.5 -30.5	99.31	30.34	30.44	**0.10**	68.95
MW-4	1/24/11	21.5-31.5	101.51	DRY			
MW-4R	1/24/11	20.5-30.5	101.56	ND	29.84	ND	71.72
MW-5	1/24/11	15-30	102.16	NM - Obstruction in Well			
MW-13R	1/24/11	29-44	98.33	29.00	29.01	**0.01**	69.33
MW-14B	1/24/11	20-40	100.74	33.40	33.63	**0.23**	67.29
MW-20	1/24/11	18-38.5	98.90	30.64	30.69	**0.05**	68.17
MW-20R	1/24/11	34.5-49.5	98.38	ND	30.19	ND	68.19
MW-26	1/24/11	15-30	96.36	ND	30.31	ND	66.05
MW-32	1/24/11	20-35	97.73	30.41	30.96	**0.55**	66.34
MW-35	1/24/11	25-40	102.67	ND	32.99	ND	69.68
MW-36	1/24/11	25-40	101.03	34.29	34.54	**0.25**	66.30
MW-37	1/24/11	26-41	98.29	ND	33.40	ND	64.89
MW-38	1/24/11	28-43	99.19	33.44	33.45	**0.01**	65.73
MW-39	1/24/11	25-40	100.71	32.55	33.60	**1.05**	66.29
MW-40	1/24/11	25-40	95.79	ND	28.08	ND	67.71
MW-41	1/24/11	20-35	98.48	ND	29.58	ND	68.90
MW-42	1/24/11	19-34	98.89	ND	26.67	ND	72.22
MW-43	1/24/11	25-40	101.13	ND	27.88	ND	73.25
MW-44	1/24/11	20-35	97.01	ND	28.79	ND	68.22
RW-1	1/24/11	NA	NA	33.13	37.63	**4.50**	NA
RW-2	1/24/11	NA	NA	ND	28.81	ND	NA
RW-3	1/24/11	NA	NA	31.90	31.91	**0.01**	NA

Notes:
1) Ground Water elevation corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) bgs - below ground surface
5) btoc - below top of casing

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NC
	1/6/09			DRY			
	1/24/11			ND	18.92	ND	81.11
MW-2	10/11/96	20.5 -30.5	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			27.10	28.10	**1.00**	71.99
	1/6/09			DRY			
	1/24/11			30.34	30.44	**0.10**	68.95
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			DRY			

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
	1/6/09			ND	29.85	ND	71.71
	1/24/11			ND	29.84	ND	71.72
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			
	5/28/03			21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86
	6/17/08			ND	19.11	ND	81.34
	1/6/09			ND	33.33	ND	67.12
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NM	NM	NM	NM
	5/28/03			ND	18.00	ND	83.43
	12/20/04			DRY			
	6/05/07			ND	28.71	ND	72.72
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-8	10/11/96	10-20	103.85	DRY			
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
	6/17/08			ND	30.75	ND	73.14
	1/6/09			ND	36.24	ND	67.65
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			DRY			
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
	6/17/08			NM	26.65	ND	72.34
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-10	10/11/96	8-18	93.53	DRY			
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
	6/17/08			ND	24.18	ND	69.13
	1/6/09			ND	26.97	ND	66.34
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY			
	6/05/07			ND	15.18	ND	70.62
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
	6/17/08			ND	25.40	ND	69.96
	1/6/09			ND	29.09	ND	66.27
	1/24/11			NM	NM	NM	NM
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	**0.41**	77.87
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			WELL DESTROYED			

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	71.99
	1/6/09			31.23	31.77	**0.54**	66.56
	1/24/11			29.00	29.01	**0.01**	69.33
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	69.94
	1/6/09			35.70	35.87	**0.17**	64.87
	1/24/11			33.40	33.63	**0.23**	67.29
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58
	6/17/08			ND	28.20	ND	71.88
	1/6/09			ND	33.03	ND	67.05
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-16	10/11/96	13-23.5	100.57	DRY			
	9/19/01			ND	22.47	ND	78.10
	9/18/02			DRY			
	5/28/03			ND	17.84	ND	82.73
	12/20/04			DRY			
	6/17/08			ND	22.85	ND	77.72
	1/6/09			ND	22.93	ND	77.64
	1/24/11			NM	NM	NM	NM
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL DESTROYED					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL DESTROYED					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
	6/17/08			ND	30.55	ND	68.2
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY			
	6/17/08			WELL CASING BENT; BAILER OBSTRUCTED			
	1/6/09			WELL CASING BENT; BAILER OBSTRUCTED			
	1/24/11			WELL CASING BENT; BAILER OBSTRUCTED			

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
	6/17/08			ND	26.96	ND	67.11
	1/6/09			ND	31.19	ND	62.88
	1/24/11			NM	NM	NM	NM
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33
	6/06/07			ND	28.75	ND	70.15
	6/17/08			29.80	30.53	**0.73**	67.80
	1/6/09			32.21	32.50	**0.29**	66.40
	1/24/11			30.64	30.69	**0.05**	68.17
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			29.69	29.94	**0.25**	68.25
	1/6/09			31.78	31.80	**0.02**	66.58
	1/24/11			ND	30.19	ND	68.19

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
	6/17/08			ND	31.66	ND	65.88
	1/6/09			ND	34.50	ND	63.04
	1/24/11			NM	NM	NM	NM
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NM	NM	NM	NM
	6/05/07			ND	33.00	ND	67.87
	6/17/08			ND	33.98	ND	66.89
	1/6/09			ND	33.50	ND	67.37
	1/24/11			NM	NM	NM	NM
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
	6/17/08			ND	31.42	ND	67.02
	1/6/09			ND	35.45	ND	62.99
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
	6/17/08			ND	27.38	ND	69.79
	1/6/09			ND	30.61	ND	66.56
	1/24/11			NM	NM	NM	NM
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97
	6/17/08			ND	27.55	ND	67.42
	1/6/09			ND	29.18	ND	65.79
	1/24/11			NM	NM	NM	NM
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			DRY			
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
	6/17/08			ND	27.51	ND	68.85
	1/6/09			ND	29.98	ND	66.38
	1/24/11			ND	30.31	ND	66.05

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
	6/17/08			ND	26.63	ND	66.71
	1/6/09			ND	28.27	ND	65.07
	1/24/11			NM	NM	NM	NM
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
	6/17/08			ND	27.00	ND	66.19
	1/6/09			ND	30.67	ND	62.52
	1/24/11			NM	NM	NM	NM
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
	6/17/08			ND	26.38	ND	65.73
	1/6/09			ND	27.74	ND	64.37
	1/24/11			NM	NM	NM	NM
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07			ND	19.31	ND	65.05
	6/17/08			ND	20.18	ND	64.18
	1/6/09			ND	20.09	ND	64.27
	1/24/11			NM	NM	NM	NM
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
	6/17/08			ND	29.63	ND	68.50
	1/6/09			ND	31.83	ND	66.30
	1/24/11			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			24.97	27.22	**2.25**	68.76
	1/6/09			31.11	33.11	**2.00**	64.62
	1/24/11			30.41	30.96	**0.55**	66.34
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81
	6/17/08			ND	21.29	ND	73.33
	1/6/09			ND	21.39	ND	73.23
	1/24/11			NM	NM	NM	NM
MW-34	1/11/10	19-34	95.61	NM	NM	NM	NM
	1/24/11			NM	NM	NM	NM
MW-34D	1/11/10	55-60	95.71	ND	26.10	ND	69.61
	1/24/11			NM	NM	NM	NM
MW-35	1/24/11	25-40	102.67	ND	32.99	ND	69.68
MW-36	1/24/11	25-40	101.03	34.29	34.54	**0.25**	66.30
MW-37	1/24/11	26-41	98.29	ND	33.40	ND	64.89
MW-38	1/24/11	28-43	99.19	33.44	33.45	**0.01**	65.73
MW-39	1/24/11	25-40	100.71	32.55	33.60	**1.05**	66.29
MW-40	1/24/11	25-40	95.79	ND	28.08	ND	67.71
MW-41	1/24/11	20-35	98.48	ND	29.58	ND	68.90
MW-42	1/24/11	19-34	98.89	ND	26.67	ND	72.22
MW-43	1/24/11	25-40	101.13	ND	27.88	ND	73.25
MW-44	1/24/11	20-35	97.01	ND	28.79	ND	68.22

Notes:

1) Ground Water elevation corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) bgs - below ground surface
5) btoc - below top of casing

APPENDIX A

Geologist Logs and Water Well Records

GEOLOGIST LOG

Terracon

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-35**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/16/10	Date Completed: 12/16/10	Screen: 2" (0.010) Slotted PVC	From: 25 - To: 40
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 40
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 21 - To: 23
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 21
Boring Depth (ft.): 42.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 8.25	GW Level: dry / Time/Date: 12/16/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**ASPHALT**		0
2						**SILT**, red, dry.		2
4								4
6								6
8						**SILT**, trace medium quartz grains, red, dry.		8
10						**SILT**, trace quartz grains, orange, dry.		10
12						**SILT**, orangish white, dry.		12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30						**SILT**, orangish white, dry, petroleum odor.		30
32								32
34								34
36						**SILT**, orangish white, dry, strong petroleum odor.		36
38								38
40								40
42						**Boring Terminated at 42 ft.**		42

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimaore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-35

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-40	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-16-10
40 ft. Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 25 ft. and 40 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23 ft. to 40 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print) 9088 North Field dr Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-36**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/27/10	Date Completed: 12/27/10	Screen: 2" (0.010) Slotted PVC	From: 25 - To: 40
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 40
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Pellets	From: 21 - To: 23
Method: Air Rotary	Equipment: Gus-Pech 1100E	Grout: Portland Cement Type I	From: 0 - To: 21
Boring Depth (ft.): 40.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 35.65 Time/Date: 12/27/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**ASPHALT**		0
2						**SILT**, red, dry.		2
4								4
6						**SILT**, light brown, dry.		6
8						**SILT**, light gray, dry.		8
10						**SILT**, orange, dry.		10
12						**PARTIALLY WEATHERED ROCK**, pink, dry.		12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30								30
32								32
34								34
36							▼	36
38								38
40						**Boring Terminated at 40 ft.**		40

LOG OF BORING WELL 73058013.GPJ GAGE_CRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: DC Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 Nirth Mine Street
City: McCormick Zip: SC
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-36

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
ORANGE SILTY CLAY	0	25'
ROCK	25'	40'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: 2' bentonite seal from 21' to 23'

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☒ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-27-10
40' ft. Date Completed: 12-27-10

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 25' ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 25' ft. and 40' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23' ft. to 40' ft.
Effective size 20/30 SILICA Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Steve Poloniewicz **CERT. NO.:** 1472
Address: (Print)
9000 Markswood Rd.
N.C. 28278
Level: A ☒ B ☐ C ☐ D ☐ (circle one)
Telephone No.: (704) 634-4589 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 1-04-2011
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-37**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/14/10	Date Completed: 12/15/10	Screen: 2" (0.010) Slotted PVC	From: 26 - To: 41
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 24 - To: 41
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 22 - To: 24
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 22
Boring Depth (ft.): 45.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 8.25	GW Level: ▼ 34.65 Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**TOPSOIL**		
2						**SILT**, orange, dry.		2
4								4
6								6
8								8
10						**SILT**, light orange, dry.		10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26						**SILT**, with quartz grains, reddish orange,, dry.		26
28								28
30								30
32								32
34							▼	34
36								36
38						**SILT**, dry.		38
40								40
42								42
44						**Boring Terminated at 45 ft.**		44

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 1/18/11

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Balitmore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-37

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-41	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-14-10
41 ft. Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 26 ft. and 41 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 24 ft. to 41 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 22 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print)
9088 North Field dr
Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-38**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/14/10	Date Completed: 12/15/10	Screen: 2" (0.010) Slotted PVC	From: 28 - To: 43
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 26 - To: 43
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 24 - To: 26
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 24
Boring Depth (ft.): 43.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 8.25	GW Level: dry / Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**TOPSOIL**		
2						**SILT**, red, dry.		2
4						**SILT**, orange, dry.		4
6						**SILT**, light orange, dry.		6
8								8
10								10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26								26
28								28
30						**SILT**, trace coarse quartz grains, red, dry.		30
32								32
34								34
36								36
38								38
40								40
42								42
						Auger Refusal at 43 ft.		

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-38

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-43	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 43 ft. Date Started: 12-14-10 Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 28 ft. and 43 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 26 ft. to 43 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 24 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print) 9088 North Field dr Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-39**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/27/10	Date Completed: 12/27/10	Screen: 2" (0.010) Slotted PVC	From: 25 - To: 40
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 40
Drilling Co.: SAEDACCO	Driller: R. Miller	Seal: Bentonite Pellets	From: 21 - To: 23
Method: Air Rotary	Equipment: Gus-Pech 1100E	Grout: Portland Cement Type I	From: 0 - To: 21
Boring Depth (ft.): 40.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 32.12 Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**TOPSOIL**		0
2						**SILT**, white to orange, dry.		2
4								4
6								6
8								8
10						**WEATHERED ROCK**, red, laminated, dry.		10
12								12
14								14
16						**WEATHERED ROCK**, red, laminated, dry, petroleum odor.		16
18								18
20								20
22								22
24								24
26								26
28								28
30						**WEATHERED ROCK**, red, laminated, dry, strong petroleum odor.	▼	30
32								32
34								34
36						**PARTIALLY WEATHERED ROCK**, gray.		36
38								38
40						**Boring Terminated at 40 ft.**		40

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 North
City: McCormick Zip:
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-39

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
ORANGE SILTY CLAY	0	25'
ROCK	25'	40'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: 2' bentonite seal from 21' to 23'

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☒ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-27-10
40' ft. Date Completed: 12-27-10

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 25' ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 25' ft. and 40' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23' ft. to 40' ft.
Effective size 20/30 SILICA Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ ☐ Not installed
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Robert Miller CERT. NO.: 1472
Address: (Print) 9000 Markswood Rd. N.C. 28278
Level: A ☐ B ☒ C ☐ D ☐ (circle one)
Telephone No.: (704) 634-4589 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Robert L. Miller Date: 12-30-10
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

GEOLOGIST LOG

Terracon

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-40**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/27/10	Date Completed: 12/27/10	Screen: 2" (0.010) Slotted PVC	From: 25 - To: 40
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 40
Drilling Co.: SAEDACCO	Driller: S. Poloniewicz	Seal: Bentonite Pellets	From: 21 - To: 23
Method: Air Rotary	Equipment: Gus-Pech 1100E	Grout: Portland Cement Type I	From: 0 - To: 21
Boring Depth (ft.): 40.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: dry Time/Date: 12/27/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**ASPHALT**		
2						**SILT**, white, dry.		2
4								4
6								6
8								8
10						**SILT**, reddish white, dry.		10
12								12
14								14
16								16
18						**PARTIALLY WEATHERED ROCK**, pinkish orange, dry.		18
20								20
22								22
24								24
26								26
28								28
30								30
32								32
34								34
36								36
38								38
40						**Boring Terminated at 40 ft.**		40

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 North Mine Street
City: McCormick Zip:
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-40

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
ORANGE SILTY CLAY	0	25'
ROCK	25'	40'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
2' bentonite seal from 21' to 23'

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☒ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER:
UMW - 23659

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-27-10
40' ft. Date Completed: 12-27-10

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 25' ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 25' ft. and 40' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23' ft. to 40' ft.
Effective size 20/30 SILICA Uniformity Coefficient _____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Steve Poloniewicz **CERT. NO.:** 1472
Address: (Print)
9000 Markswood Rd.
N.C. 28278
Level: A ☒ B ☐ C ☐ D ☐ (circle one)
Telephone No.: (704) 634-4589 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 1-04-2011
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-41**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/15/10	Date Completed: 12/15/10	Screen: 2" (0.010) Slotted PVC	From: 20 - To: 35
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 18 - To: 35
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 16 - To: 18
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 16
Boring Depth (ft.): 38.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: dry Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**ASPHALT**		0
2						**SILT**, orange, dry.		2
4								4
6								6
8								8
10						**SILT**, orange, dry, petroleum odor.		10
12								12
14								14
16								16
18								18
20								20
22								22
24								24
26						**SILT**, with coarse quartz grains, red, damp.		26
28								28
30								30
32								32
34								34
36						**CLAY**, trace coarse quartz grains, reddish orange, dry.		36
38						**Boring Terminated at 38 ft.**		38

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 1/18/11

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-41

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-35	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-15-10
35 ft. Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 20 ft. and 35 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 18 ft. to 35 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 16 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print)
9088 North Field dr
Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Terracon GEOLOGIST LOG

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-42**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/14/10	Date Completed: 12/15/10	Screen: 2" (0.010) Slotted PVC	From: 19 - To: 34
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 17 - To: 34
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 15 - To: 17
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 15
Boring Depth (ft.): 35.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 28.60 Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**TOPSOIL**		
2						**SILT**, orange, dry.		2
4								4
6								6
8								8
10								10
12								12
14								14
16						**SILT**, red, dry.		16
18								18
20								20
22								22
24								24
26						**CLAY**, red, damp.		26
28						**CLAY**, trace coarse quartz grains, red, damp. ▼		28
30								30
32								32
34								34
35						**Boring Terminated at 35 ft.**		

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 2/1/11

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-42

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-34	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW-23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 34 ft. Date Started: 12-14-10 Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to 19 ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 19 ft. and 34 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 17 ft. to 34 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 15 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print)
9088 North Field dr
Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 12-22-10

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

GEOLOGIST LOG

Terracon

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-43**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/13/10	Date Completed: 12/15/10	Screen: 2" (0.010) Slotted PVC	From: 25 - To: 40
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 40
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 21 - To: 23
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 21
Boring Depth (ft.): 40.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: ▼ 39.90 Time/Date: 12/15/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**TOPSOIL**		
2						**CLAY**, mottled (red and orange), dry.		2
4								4
6								6
8								8
10								10
12								12
14								14
16								16
18								18
20						**CLAY**, mottled (red and orange), moist.		20
22								22
24								24
26								26
28								28
30								30
32								32
34								34
36								36
38								38
40						**Boring Terminated at 40 ft.**		40

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-43

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-40	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-13-10
40 ft. Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 25 ft. and 40 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 23 ft. to 40 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print) 9088 North Field dr Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

GEOLOGIST LOG

Terracon

Project: FOMRER SC-576		Project Number: 73058013	Boring/Well: **MW-44**
Client: CROWN CENTRAL LLC		***Well Construction Data***	
Date Started: 12/14/10	Date Completed: 12/16/10	Screen: 2" (0.010) Slotted PVC	From: 20 - To: 35
Logged By: W. Walker	Coordinates:	Pack: #2 Filter Sand	From: 18 - To: 35
Drilling Co.: SAEDACCO	Driller: Randy	Seal: Bentonite Pellets	From: 16 - To: 18
Method: 4.25" HSA	Equipment: Geoprobe 7820 DT	Grout: Portland Cement Type I	From: 0 - To: 16
Boring Depth (ft.): 35.0	TOC Elevation:	Inner Casing: 2" Threaded PVC Sch 40	
Boring Diameter (in): 6	GW Level: dry / Time/Date: 12/16/2010	Outer Casing/Stick Up:	

Depth	Sample	Sample Number	Blows/ 6 inches	FID (ppm)	Lithology	Description	Well Detail	Depth
0						**ASPHALT**		
2						**SILT**, red, dry.		2
4								4
6								6
8								8
10								10
12								12
14								14
16						**SILT**, red, damp.		16
18								18
20						**CLAY**, dark red, moist.		20
22								22
24								24
26								26
28								28
30						**CLAY**, dark red, moist, petroleum odor.		30
32								32
34								34
35						**Boring Terminated at 35 ft.**		

LOG OF BORING WELL 73058013.GPJ GAGE_GRP.GDT 12/29/10

Terracon
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P. O. Box 1168
City: Baltimore State: MD Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC 576)
Street Address: 201 North Maine st
City: McCormick Zip:
Latitude: 33.91272 Longitude: 82.29716

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** mw-44

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
clay	0-35	
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-15-10
35 ft. Date Completed: same

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
_____ in. to _____ ft. depth
_____ in. to _____ ft. depth
Height: Above ☐ Below ☒
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: pvc Diam.: 2"
Slot/Gauge: 10 Length: 15
Set Between: 20 ft. and 35 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 18 ft. to 35 ft.
Effective size 2 Uniformity Coefficient sand

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☒ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 16 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☒ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman CERT. NO.: 1910
Address: (Print)
9088 North Field dr
Mill SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: (704) 622-4750 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 12-22-10
Well Driller

If D Level Driller, provide supervising driller's name:
Tim Thomas

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: DC Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 Nirth Mine Street
City: McCormick Zip: SC
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-36A

4. ABANDONMENT: ☒ Yes ☐ No
Grouted Depth: from 10 ft. to 0 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Overburden / PWR	0	10'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-16-10
ft. Date Completed: 12-16-10

10. CASING: ☐ Threaded ☐ Welded
Diam.:
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
in. to ft. depth
in. to ft. depth
Height: Above ☐ Below ☒
Surface ft.
Weight lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: Diam.:
Slot/Gauge: Length:
Set Between: ft. and ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from ft. to ft.
Effective size Uniformity Coefficient

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other
Depth: From ft. to ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type
Well Disinfected ☐ Yes ☒ No Type: Amount:

18. PUMP: Date installed: Not Installed ☐
Mfr. Name: Model No.:
H.P. Volts Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman **CERT. NO.:** 1910
Address: (Print) 9088 Northfield Drive Fort Mill, SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: 803 548 2180 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Well Driller Date: 1-04-2011

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MW-36A Abandonment Log

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: DC Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 Nirth Mine Street
City: McCormick Zip: SC
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-39A

4. ABANDONMENT: ☒ Yes ☐ No
Grouted Depth: from 30 ft. to 0 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Overburden	0	22'
PWR	8	30
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-15-10
ft. Date Completed: 12-15-10

10. CASING: ☐ Threaded ☐ Welded
Diam.:
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
in. to ft. depth
in. to ft. depth
Height: Above ☐ Below ☒
Surface ft.
Weight lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: Diam.:
Slot/Gauge: Length:
Set Between: ft. and ft.
ft. and ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

14. WATER QUALITY
Chemical Analysis: ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from ft. to ft.
Effective size Uniformity Coefficient

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other
Depth: From ft. to ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type
Well Disinfected ☐ Yes ☐ No Type: Amount:

18. PUMP: Date installed: ☐ Not installed
Mfr. Name: Model No.:
H.P. Volts Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman **CERT. NO.:** 1910
Address: (Print) 9088 Northfield Drive Fort Mill, SC 29707
Level: A B C D (circle one) ☐ ☐ ☐ ☒
Telephone No.: 803 548 2180 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Date: 1-04-2011
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MW-39A Abandonment Log

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown Central LLC (last) (first)
Address: P.O. Box 1168
City: Baltimore State: DC Zip: 21201
Telephone: Work: 410 539 7400 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: One Stop (Former SC576)
Street Address: 201 Nirth Mine Street
City: McCormick Zip: SC
Latitude: 33.91272 N Longitude: 82.29716 W

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:** MW-40A

4. ABANDONMENT: ☒ Yes ☐ No
Grouted Depth: from 18 ft. to 0 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Overburden / PWR	0	18'
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: UMW - 23659

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 12-15-10
____ ft. Date Completed: 12-15-10

10. CASING: ☐ Threaded ☒ Welded
Diam.: ____
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
____ in. to ____ ft. depth
____ in. to ____ ft. depth
Height: Above ☐ Below ☒
Surface ____ ft.
Weight ____ lb./ft.
Drive Shoe? ☐ Yes ☒ No

11. SCREEN:
Type: ____ Diam.: ____
Slot/Gauge: ____ Length: ____
Set Between: ____ ft. and ____ ft. NOTE: MULTIPLE SCREENS
____ ft. and ____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

12. STATIC WATER LEVEL ____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface:
____ ft. after ____ hrs. Pumping ____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: ____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☒ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from ____ ft. to ____ ft.
Effective size ____ Uniformity Coefficient ____

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other: ____
Depth: From ____ ft. to ____ ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type ____
Well Disinfected ☐ Yes ☒ No Type: ____ Amount: ____

18. PUMP: Date installed: ____ Not installed ☐
Mfr. Name: ____ Model No.: ____
H.P. ____ Volts ____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Randy Hoffman **CERT. NO.:** 1910
Address: (Print) 9088 Northfield Drive Fort Mill, SC 29707
Level: A ☐ B ☐ C ☐ D ☒ (circle one)
Telephone No.: 803 548 2180 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: ____ (Well Driller) Date: 1-04-2011

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MW-40A Abandonment Log

APPENDIX B

Disposal Manifests

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
			TK10546

GENERATOR

5. Generator's Name and Mailing Address

EAST POINT
5TH AVE AND HWY 28
MCCORMICK, SC

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: TK TANK SERVICE — SUMTER, SC — U.S. EPA ID Number: 987573557

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address

TK TANK SERVICES
425 BOULEVARD ROAD
SUMTER, SC 29153

U.S. EPA ID Number

Facility's Phone: 803-418-5314 — 987573557

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON HAZARDOUS PETROLEUM CONTAMINATED SOIL	38	DM	~~AM~~ 38 DM		
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

TERRACON CONSULTANTS
COLUMBIA, SC

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name — Signature — Month — Day — Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Joseph W. Stanton — Signature — Month: 1 — Day: 4 — Year: 11

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or ~~Operator~~: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Tommy Keels — Signature: Tommy Keels — Month: 1 — Day: 4 — Year: 11

169-BLC-O 5 11977 (Rev. 8/06)

DESIGNATED FACILITY TO GENERATOR

CERTIFICATE OF DISPOSAL

This certifies that

T K TANK SERVICES, INC

 # Drums **38** **DRUMS** **Contaminant** **Virgin Petroleum**

This is to certify that the above soil has been processed and disposed of

in accordance with and exceeding EPA regulations on petroleum contaminated soils from

FAST POINT--McCORMICK SC

1-04-11
Date

Tommy Hall
Signature

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MR JIM JANSON
CROWN CENTRAL LLC
PO BOX 1168
BALTIMORE MD 21203-1168

JAN 1 2 2012

Re: **AFVR Directive**
One Stop: 201 N Mine St, Mccormick, SC 29835
UST Permit #**06443**; Cost Agreement #**42052**
Release reported December 13, 1989
Assessment Report Report received March 25, 2011
Mccormick County

Dear Mr. Janson:

The Underground Storage Tank Management Division (UST Division) of the South Carolina Department of Health and Environmental Control (SCDHEC) has approved the following scope of work to remove free product:

- Four (4) 8-Hour AFVR Events
  #1 MW-2 + MW-5 + RW-1
  #2 MW-39 + MW-13R + MW-14R
  #3 MW-4 + MW-4R
  #4 MW-20 + MW-32
- MW-5 - replace cover and cap
  (approx 1.7' of sediment at 7/19/11 - do not redevelop at this time - there is sufficient vadose zone within well screen for AFVR)

The AFVR events must be conducted and reported in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 1.0 and in compliance with all applicable regulations. Cost Agreement #**42052** has been approved in the amount shown on the enclosed cost agreement form. The AFVR activities may proceed immediately upon receipt of this letter.

Terracon Consultants Inc. may submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please Note that all site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Interim reports and invoices may be submitted for this scope of work. If the final invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the UST Division is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the UST Division for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed

and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

On all correspondence or inquiries regarding this project, please reference **UST Permit #06443.** If you have any questions, please feel free to contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or email at ebingedj@dhec.sc.gov.

Sincerely,

David J. Ebinger, Project Manager
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Cost Agreement

cc: Terracon Consultants Inc: 521 Clemson Rd, Columbia, SC 29229 (w/ enc)
Mahesh Patel: 2811 Reidville Rd Ste 11, Spartanburg, SC 29301-3227
Technical File (w/ enc)

Approved Cost Agreement 42052

Facility: 06443 ONE STOP

EBINGEDJ

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		A	EQUIPMENT	4.0000	575.00	2,300.00
		B	PERSONNEL	4.0000	290.00	1,160.00
17 DISPOSAL						
		A	WASTEWATER	2,200.0000	0.80	1,760.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PCT	PERCENT	0.1500	18,355.00	2,753.25
23 EFR						
		A	8 HOUR EVENT	4.0000	3,000.00	12,000.00
		C	OFF GAS TREATMENT	32.0000	35.00	1,120.00
25 WELL REPAIR						
		G	REPLACE LOCKING WELL CAP & LOC	1.0000	15.00	15.00
				Total Amount		21,108.25

LETTER OF TRANSMITTAL

Terracon
521 Clemson Rd.
Columbia, SC 29229
803-741-9000 / 803-741-9900 fax

UST
MAY 02 2012
PROGRAM

TO Mr. David Ebinger

SCDHEC
Bureau of Land and Waste Management
UST Program
2600 Bull St.
Columbia, SC 29201

DATE 4/30/12	JOB NO. 73058013
RE: Former SC-576, McCormick, SC UST Site No. 06443	
Report AFVR	

WE ARE SENDING YOU **X** Attached ☐ Under separate cover via _____ the following items:

COPIES	DATE	DESCRIPTION
1	4/30/12	AFVR Report – One Stop (Former SC-576) (CD)

UST
DOCKETING

THESE ARE TRANSMITTED as checked below:

☐ For approval
☐ For your use
☐ As requested
☐ For review and comment
☐ Approved as submitted
☐ Approved as noted
☐ Returned for corrections
☐ Resubmit ___ copies for approval
☐ Submit ___ copies for distribution
☐ Return ___ corrected prints

REMARKS:

Enclosed is the AFVR report for the above referenced site. Please feel free to call me if you have any questions.

COPY TO: _____

SIGNED: **Mike Hudgins**

If enclosures are not as noted, kindly notify us at once.

Report of Aggressive Fluid Vapor Recovery (AFVR)

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA

UST PERMIT # 06443

April 30, 2012
Terracon Project No. 73058013

Prepared for:
Crown Central LLC
P.O. Box 1168
Baltimore, Maryland 21203

Prepared by:
Terracon Consultants, Inc.
Columbia, South Carolina

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

Terracon

April 30, 2012

Mr. David Ebinger
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Aggressive Fluid Vapor Recovery***
One Stop (Former SC-576)
201 N. Mine Street, McCormick, South Carolina
UST Permit # 06443; CA # 38954
Terracon Project No. 73058013

Dear Mr. Ebinger:

On behalf of Crown Central LLC, Terracon Consultants, Inc is pleased to submit this Report of Aggressive Fluid Vapor Recovery (AFVR) for the former SC-576 site located in McCormick, South Carolina.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.
UST Contractor Certification No. 246

for

Regan W. Norris
Staff Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist

P. MICHAEL HUDGINS REGISTERED NO. 1137 PROFESSIONAL GEOLOGIST SOUTH CAROLINA

Attachment

cc: Jim Janson / Crown Central LLC

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

SECTION **PAGE NO.**

Cover Letter

1.0 INTRODUCTION 1
1.1 Site Description 1
1.2 Facility History 1
2.0 Aggressive Fluid Vapor Recovery 2
3.0 CONCLUSIONS AND RECOMMENDATIONS 4

FIGURES

1 Site Location Map
2 Site Map

APPENDIX

A AFVR Field Data
B Waste Disposal Manifest

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed four Aggressive Fluid Vapor Recovery (AFVR) events at the One Stop (former SC-576) facility, 201 N. Mine Street, McCormick, South Carolina. The work was performed in accordance with the South Carolina Department of Health and Environmental Control (SCDHEC) cost agreement #42052 dated January 12, 2012, Risk Based Corrective Action (RBCA) guidance document, and in accordance with the UST Quality Assurance Program Plan QAPP prepared by SCDHEC. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout and surrounding well network is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 200 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Eleven AVFR events were performed at this site from December 2007 to October 2009 to remove free-phase product from the subsurface. AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 11 events performed as part of this scope of work, approximately 8,200 pounds of VOCs have been removed from the subsurface. Free product thicknesses has been removed or has decreased in three of the AFVR/monitoring wells (MW-1, MW-4, and MW-32), has remained relatively the same in three wells (MW-2, MW-20/20R), and has increased in one well (MW-5). This increase may be the result of mobilizing product toward the well with the AFVR events. Terracon recommended additional AFVR events

to remove petroleum hydrocarbons from the area around the UST system (MW-5), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program.

In December 2010, ten shallow monitoring wells were installed to further define the extent of free product in the upper portion of the shallow aquifer. Based on the results from this assessment Terracon suggested that additional AFVR events be performed to remove petroleum hydrocarbons from the area around the UST system (MW-5, RW-4), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program.

In January 2012, the SCDHEC requested four 8-hour AFVR events in the vicinity of former UST basin, in the SCDOT median near MW-13R, MW-14R, and in the area of the former Napa store at MW-39. Also included in this scope of work was to replace the locking cap and vault cover at monitoring well MW-5. This report includes a summary of the AFVR events along with our conclusions and recommendations.

2.0 AGGRESSIVE FLUID VAPOR RECOVERY

Four AFVR events were conducted by Terracon from March 19-22, 2012 to extract dissolved-phase hydrocarbons from the unsaturated zone, capillary fringe, and the shallow aquifer at the site. AFVR is a proven remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (vapor, dissolved, and free phase) hydrocarbons from the subsurface. Figure 2 is a site map showing monitoring well locations.

The AFVR events were performed using trailer-mounted vacuum extraction rig equipped with a DEKKER oil-sealed liquid rig pump and an air-water separator unit. Prior to system start up, the trailer mounted unit was properly grounded to the land surface with a cooper grounding rod connected to the trailer by a metal ground lead to minimize the potential for static electricity to create an explosion hazard during extraction. One-inch diameter PVC stinger tubes with airtight 2-inch by 1-inch well seals were set approximately six-inches into the water table, and were adjusted according to water level changes during the event to minimize water production and maximize product recovery and contaminant mass removal from the vadose zone/water table interface. Vacuum pressures were monitored at each wellhead during the events, and were adjusted to optimize the flow during extraction.

Depth to product/ground water, and were gauged in the extraction well at the beginning and the end of each AFVR event. Differential pressures (vacuum) measurements were recorded with a magnehelic gauge at monitoring wells in the vicinity of the extracted wells to determine the radius of influence of the vacuum at each extracted well. These measurements were recorded on Field Data Sheets, included Appendix A.

System readings were recorded at 30-minute intervals for off-gas concentrations, flow measurements, and surrounding vacuum pressure throughout each event. Off-gas

concentrations were recorded with a Bacharach TLV Sniffer, and the off-gas velocity was measured using an anemometer at the system exhaust stack. The concentrations were recorded on Field Data Sheet, included Appendix A.

Extracted ground water generated for the AVFR events were disposed by Advanced Environmental Options, Spartanburg, South Carolina. The disposal manifests for the extracted ground water are included in Appendix B.

A summary of the AFVR events is provided in the following table:

Event #	Date	Extraction Points	Depth to Water (ft)	Pre-/Post AFVR FP thickness (ft)	Flow Range (CFM)	VOCs Recovered (gallons) / Emitted (lbs.)
12	3/19/12	MW-2 MW-5 RW-1	Dry Dry 34.7	-- -- 1.48 / --	25 - 53	64.9 / 353.2
13	3/20/12	MW-13R MW-14R MW-39	30.91 35.07 34.9	0.25 / -- 0.13 / -- 0.76 / --	29 - 98	98 / 550.7
14	3/21/12	MW-4 MW-4R	Dry 29.85	-- --	83 -114	161.2 / 921.5
15	3/22/12	MW-20 MW-32	30.83 33.57	-- 0.97	15 - 22	32.7 / 163.4
TOTAL						**356.8 / 1,988.8**

Notes:

1) A total of 1,393 gallons of ground water was produced for the 4 events.

Inspection of the data collected during extraction indicates total VOC removal ranged from 16 to 134 pounds per hour (lbs/hr) throughout the four events. Approximately 356.8 gallons (1,988.8 pounds) of free product were removed from the subsurface for the four events. The radius of influence as measured during Event #12 ranged from 27 feet at MW-1 to 112.5 feet at MW-8R, Event #13 showed a vacuum influence 87 feet from the closest extraction well at wells MW-2 and MW-32, Event # 14 produced a radius of influence extending out 112 feet to MW-8R, and during Event # 15 MW-42 was influenced at 77 feet from the nearest extraction well.

Monitoring well maintenance - Monitoring well MW-5 manhole cover and monitoring well cap were replaced and secured with new locking bolts as part of this scope of work.

3.0 CONCLUSIONS AND RECOMMENDATIONS

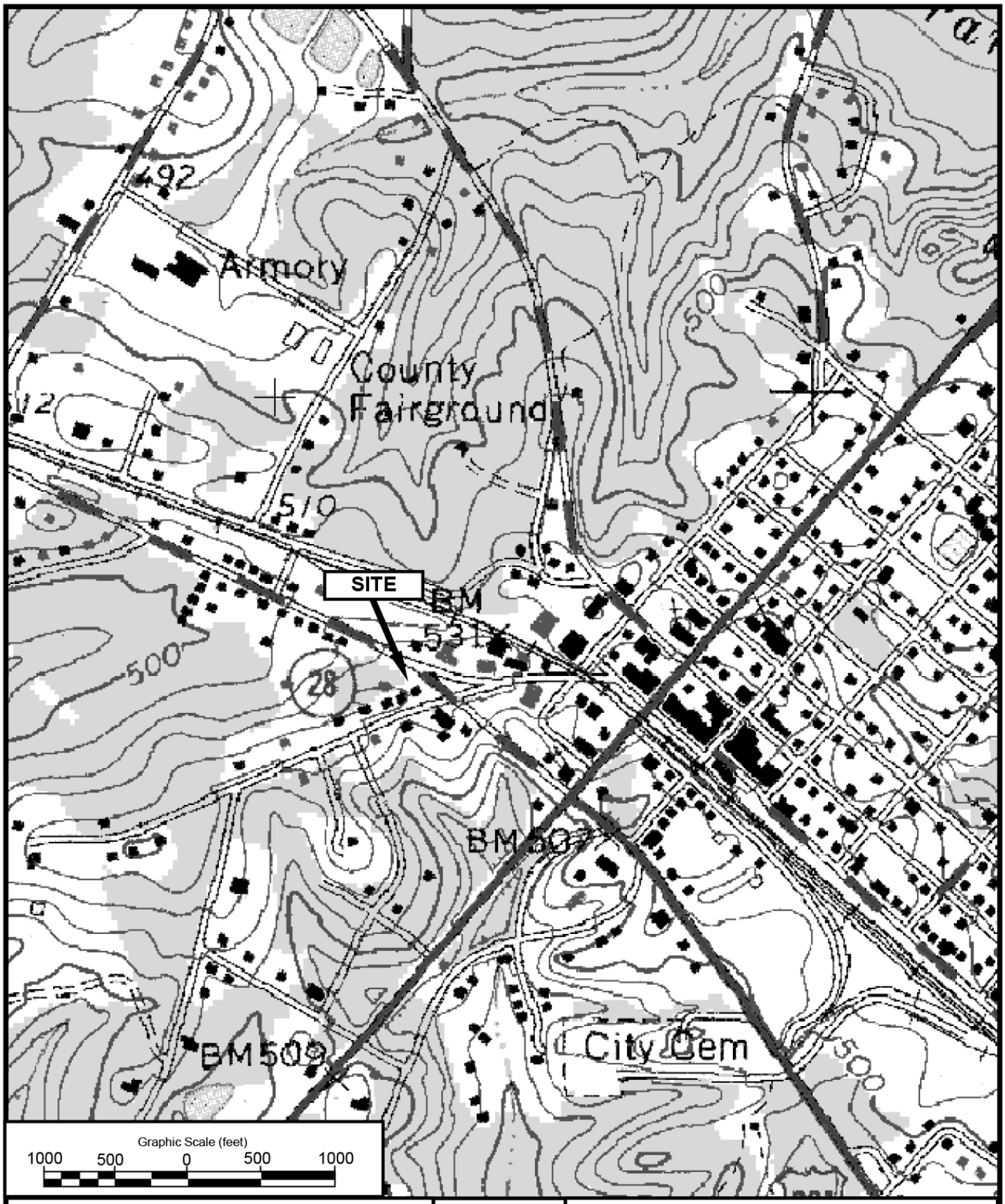
Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties have been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former UST system. The extent of the free product plume has been defined by the monitoring well network. The product extends offsite approximately 300 feet downgradient of the source area, and is approximately one foot or less in thickness.

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 15 events performed previously, approximately 10,200 pounds of VOCs have been removed from the subsurface.

Terracon recommends additional AFVR events to remove petroleum hydrocarbons from the area around the UST system (MW-5, RW-4), monitoring wells MW-13R and MW-14R, and MW-20 and MW-32.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Map



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
ONE STOP (FORMER SC-576)
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

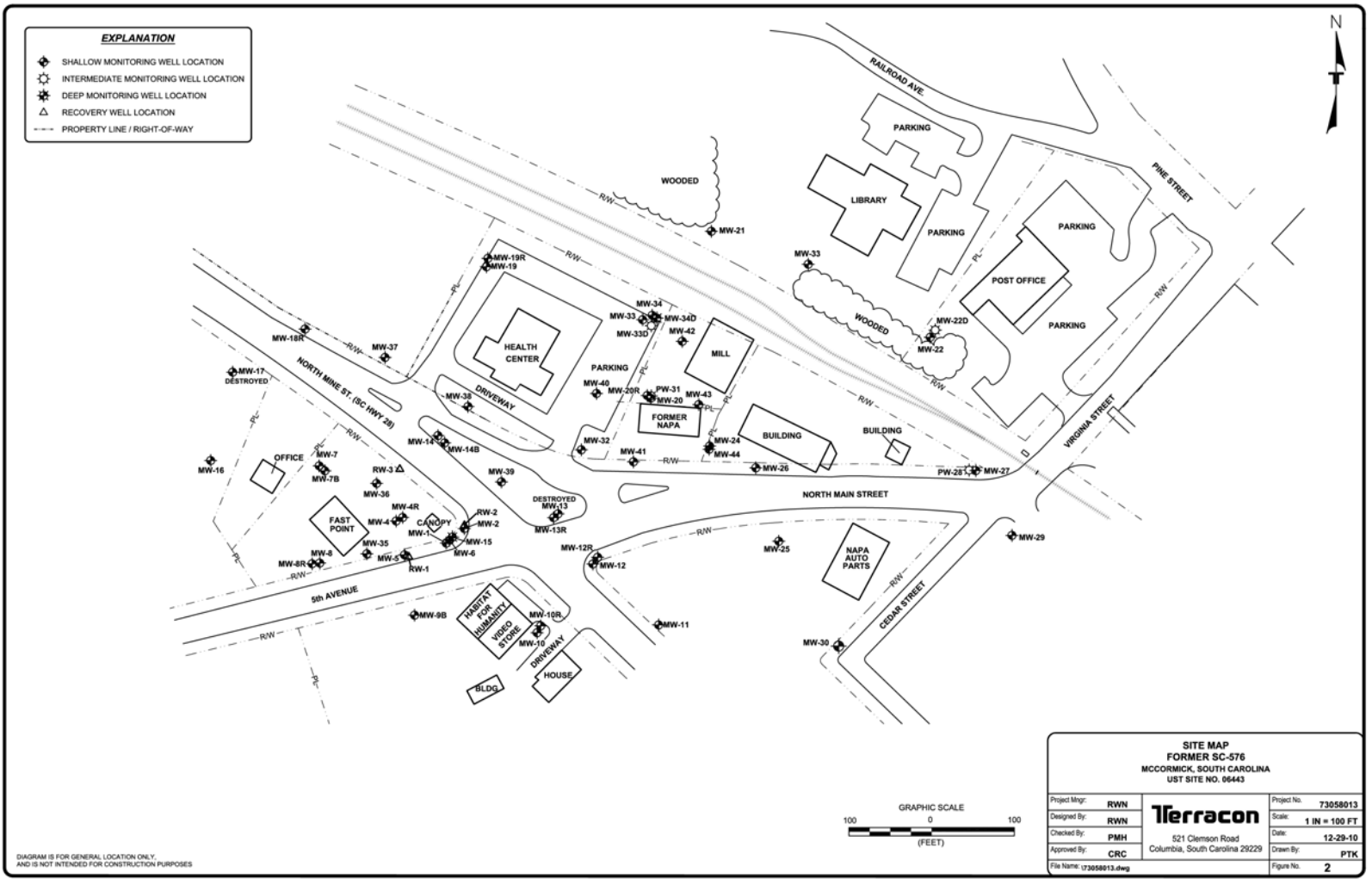


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	RWN	Terracon	Project No. 73058013
Designed By:	RWN		Scale: 1 IN = 100 FT
Checked By:	PMH	521 Clemson Road Columbia, South Carolina 29229	Date: 12-29-10
Approved By:	CRC		Drawn By: PTK
File Name: I73058013.dwg			Figure No. 2

APPENDIX A

AFVR Field Data

AFVR FIELD DATA SHEET

Terracon		Site: One Stop (SC-576)		Project No.: 73068000			3/19/2012 Temp: 59				Event #: 12		
				VOC Concentrations			Off-Gas Velocity (FPM)				VOC Emissions		
	Start Time hh:mm	End Time hh:mm	Time Interval (min)	Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)	Total Flow (CFM)	Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
	9:00	9:30	30	100,000	100,000	100,000	2,329	2,082	2,206	48.08	56.73	28.37	28.37
MW-2	9:30	10:00	30	100,000	100,000	100,000	2,082	1,973	2,028	44.20	52.16	26.08	54.44
MW-5	10:00	10:30	30	100,000	100,000	100,000	1,973	1,105	1,539	33.55	39.59	19.79	74.24
RW-1	10:30	11:00	30	100,000	100,000	100,000	1,105	1,144	1,125	24.51	28.93	14.46	88.70
	11:00	11:30	30	100,000	100,000	100,000	1,144	1,225	1,185	25.82	30.47	15.24	103.94
	11:30	12:00	30	100,000	100,000	100,000	1,225	1,312	1,269	27.65	32.63	16.32	120.25
	12:00	12:30	30	100,000	100,000	100,000	1,312	1,388	1,350	29.43	34.73	17.36	137.62
	12:30	13:00	30	100,000	100,000	100,000	1,388	1,509	1,449	31.58	37.26	18.63	156.25
	13:00	13:30	30	100,000	100,000	100,000	1,509	1,701	1,605	34.99	41.29	20.64	176.89
	13:30	14:00	30	100,000	100,000	100,000	1,701	1,687	1,694	36.93	43.58	21.79	198.68
	14:00	14:30	30	100,000	100,000	100,000	1,687	1,708	1,698	37.01	43.67	21.83	220.51
	14:30	15:00	30	100,000	100,000	100,000	1,708	1,799	1,754	38.23	45.11	22.55	243.07
	15:00	15:30	30	100,000	100,000	100,000	1,799	1,860	1,830	39.88	47.06	23.53	266.60
	15:30	16:00	30	100,000	100,000	100,000	1,860	2,144	2,002	43.64	51.50	25.75	292.35
	16:00	16:30	30	100,000	100,000	100,000	2,144	2,400	2,272	49.53	58.44	29.22	321.57
	16:30	17:00	30	100,000	100,000	100,000	2,400	2,521	2,461	53.64	63.29	31.65	353.22

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **125** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9). **59.9** **gallons**

Total Hydrocarbon Recovery:..... **64.9** **gallons**

TOTAL lbs of VOC emissions = 353.22

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-2	DRY	--	--
MW-5	DRY	--	--
RW-1	34.70	33.22	1.48

Post Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-2	DRY	--	--
MW-5	DRY	--	--
RW-1	33.90	--	--

VACUUM RADIUS OF INFLUENCE

One Stop (SC-576)
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 12 Date: 3-19-12

	Stinger Head Vacuum				MW-1	MW-4R	MW-8R	MW-9B	MW-14B
	MW-2	MW-5	RW-1	System Vacuum	Distance to Nearest Pumped Well				
					27 ft	62.5 ft	112.5 ft	69 ft	100 ft
Time	**Vacuum (Inches of Mercury Hg)**				**Vacuum (inches of water)**				
9:00	408+	238	408+	18.0	2.0+	0.1	0	0	0
9:30	408+	238	408+	18.0	2.0+	0.35	0	0	0
10:00	408+	238	408+	18.0	2.0+	0.6	0	0	0
10:30	408+	238	408+	18.0	2.0+	0.7	0.15	0	0
11:00	408+	245	408+	19.0	2.0+	0.75	0.15	0	0
11:30	408+	245	408+	19.0	2.0+	0.75	0.15	0	0
12:00	408+	258	408+	19.0	2.0+	0.75	0.15	0	0
12:30	408+	258	408+	19.0	2.0+	0.75	0	0	0
13:00	408+	258	408+	19.5	2.0+	0.75	0	0	0
13:30	408+	258	408+	19.5	2.0+	0.75	0	0	0
14:00	408+	258	408+	19.5	2.0+	0.75	0	0	0
14:30	408+	258	408+	19.5	2.0+	0.75	0	0	0
15:00	408+	258	408+	19.5	2.0+	0.75	0	0	0
15:30	408+	258	408+	19.5	2.0+	0.75	0	0	0
16:00	408+	258	408+	19.5	2.0+	0.75	0	0	0
16:30	408+	258	408+	19.5	2.0+	0.75	0	0	0
17:00	408+	258	408+	19.5	2.0+	0.75	0	0	0

Notes: 1. Radius of influence measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. Stinger Head Vacuum Measurements recorded in inches of mercury

AFVR FIELD DATA SHEET

Terracon		Site: One Stop (SC-576)		Project No.: 73068000			3/20/2012 Temp: 60				Event #: 13		
				VOC Concentrations			Off-Gas Velocity (FPM)				VOC Emissions		
	Start Time hh:mm	End Time hh:mm	Time Interval (min)	Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)	Total Flow (CFM)	Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
	7:00	7:30	30	100,000	100,000	100,000	1,110	1,123	1,117	24.34	28.72	14.36	14.36
MW-13R	7:30	8:00	30	100,000	100,000	100,000	1,123	1,202	1,163	25.34	29.90	14.95	29.31
MW-14R	8:00	8:30	30	100,000	100,000	100,000	1,202	1,172	1,187	25.88	30.53	15.27	44.58
MW-39	8:30	9:00	30	100,000	100,000	100,000	1,172	1,195	1,184	25.80	30.44	15.22	59.80
	9:00	9:30	30	100,000	100,000	100,000	1,195	1,202	1,199	26.13	30.83	15.42	75.22
	9:30	10:00	30	100,000	100,000	100,000	1,202	1,316	1,259	27.45	32.39	16.19	91.41
	10:00	10:30	30	100,000	100,000	100,000	1,316	1,509	1,413	30.79	36.34	18.17	109.58
	10:30	11:00	30	100,000	100,000	100,000	1,509	2,360	1,935	42.17	49.76	24.88	134.46
	11:00	11:30	30	100,000	100,000	100,000	2,360	4,554	3,457	75.36	88.93	44.46	178.92
	11:30	12:00	30	100,000	100,000	100,000	4,554	4,414	4,484	97.75	115.35	57.67	236.60
	12:00	12:30	30	100,000	100,000	100,000	4,414	4,375	4,395	95.80	113.04	56.52	293.12
	12:30	13:00	30	100,000	100,000	100,000	4,375	3,986	4,181	91.13	107.54	53.77	346.89
	13:00	13:30	30	100,000	100,000	100,000	3,986	3,942	3,964	86.42	101.97	50.98	397.87
	13:30	14:00	30	100,000	100,000	100,000	3,942	4,050	3,996	87.11	102.79	51.40	449.27
	14:00	14:30	30	100,000	100,000	100,000	4,050	3,883	3,967	86.47	102.03	51.02	500.29
	14:30	15:00	30	100,000	100,000	100,000	3,883	3,951	3,917	85.39	100.76	50.38	550.67

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **363** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **93.3** **gallons**

Total Hydrocarbon Recovery:..... **98.3** **gallons**

TOTAL lbs of VOC emissions = 550.67

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-13R	30.91	30.66	0.25
MW-14R	35.07	34.94	0.13
MW-39	34.90	34.14	0.76

Post Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-13R	30.15	--	--
MW-14R	36.05	--	--
MW-39	34.67	--	--

VACUUM RADIUS OF INFLUENCE

One Stop (SC-576)
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 13 Date: 3-20-12

	Stinger Head Vacuum				MW-2	MW-7	MW-10R	MW-12R	MW-32
	MW-13R	MW-14R	MW-39	System Vacuum	Distance to Nearest Pumped Well				
					87 ft	150 ft	137 ft	75 ft	87 ft
Time	**Vacuum (inches of water)**								
7:00	299	408+	408+	23.0	0.1	0	0	0	0
7:30	299	408+	408+	23.0	0.1	0	0	0	0.15
8:00	299	408+	408+	23.0	0.1	0	0	0	0.15
8:30	299	408+	408+	23.0	0.1	0	0	0	0.15
9:00	299	408+	408+	23.0	0.1	0	0	0	0.15
9:30	299	408+	408+	23.0	0.1	0	0	0	0.15
10:00	299	408+	408+	23.0	0.1	0	0	0	0.15
10:30	252	353	408	21.0	0.1	0	0	0	0.15
11:00	190	299	340	15.0	0.1	0	0	0	0.15
11:30	177	204	340	13.0	0.1	0	0	0	0.15
12:00	156	190	353	15.0	0.1	0	0	0	0.15
12:30	136	190	353	15.0	0.15	0	0	0	0.15
13:00	204	218	367	16.0	0.15	0	0	0	0.15
13:30	204	218	367	16.0	0.15	0	0	0	0.15
14:00	204	218	367	16.0	0.15	0	0	0	0.15
14:30	204	218	367	17.0	0.15	0	0	0	0.15
15:00	204	218	367	17.0	0.15	0	0	0	0.15

Notes: 1. Radius of influence measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. Stinger Head Vacuum Measurements recorded in inches of mercury

AFVR FIELD DATA SHEET

Terracon		Site: On eStop (SC-576)		Project No.: 73068000			3/21/2012 Temp: 58				Event #: 14		
				VOC Concentrations			Off-Gas Velocity (FPM)				VOC Emissions		
	Start Time hh:mm	End Time hh:mm	Time Interval (min)	Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)	Total Flow (CFM)	Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4 MW-4R	7:00	7:30	30	100,000	100,000	100,000	3,107	3,393	3,250	70.85	83.60	41.80	41.80
	7:30	8:00	30	100,000	100,000	100,000	3,393	3,593	3,493	76.15	89.85	44.93	86.73
	8:00	8:30	30	100,000	100,000	100,000	3,593	3,750	3,672	80.04	94.45	47.22	133.95
	8:30	9:00	30	100,000	100,000	100,000	3,750	3,968	3,859	84.13	99.27	49.63	183.59
	9:00	9:30	30	100,000	100,000	100,000	3,968	4,012	3,990	86.98	102.64	51.32	234.91
	9:30	10:00	30	100,000	100,000	100,000	4,012	4,436	4,224	92.08	108.66	54.33	289.23
	10:00	10:30	30	100,000	100,000	100,000	4,436	4,701	4,569	99.59	117.52	58.76	347.99
	10:30	11:00	30	100,000	100,000	100,000	4,701	4,926	4,814	104.93	123.82	61.91	409.91
	11:00	11:30	30	100,000	100,000	100,000	4,926	4,870	4,898	106.78	126.00	63.00	472.90
	11:30	12:00	30	100,000	100,000	100,000	4,870	4,806	4,838	105.47	124.45	62.23	535.13
	12:00	12:30	30	100,000	100,000	100,000	4,806	4,880	4,843	105.58	124.58	62.29	597.42
	12:30	13:00	30	100,000	100,000	100,000	4,880	4,901	4,891	106.61	125.80	62.90	660.32
	13:00	13:30	30	100,000	100,000	100,000	4,901	5,188	5,045	109.97	129.76	64.88	725.20
	13:30	14:00	30	100,000	100,000	100,000	5,188	5,238	5,213	113.64	134.10	67.05	792.25
	14:00	14:30	30	100,000	100,000	100,000	5,238	4,982	5,110	111.40	131.45	65.72	857.98
	14:30	15:00	30	100,000	100,000	100,000	4,982	4,888	4,935	107.58	126.95	63.47	921.45

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **25** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **156.2** **gallons**

Total Hydrocarbon Recovery:..... **161.2** **gallons**

TOTAL lbs of VOC emissions = 921.45

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-4	DRY	--	--
MW-4R	29.85	--	--

Post Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-4	DRY	--	--
MW-4R	29.87	--	--

VACUUM RADIUS OF INFLUENCE

One Stop (SC-576)
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 14 Date: 3-21-12

	Stinger Head Vacuum			MW-2	MW-5	MW-7B	MW-8R	MW-9B
	MW-4	MW-4R	System Vacuum	Distance to Nearest Pumped Well				
				75 ft	37 ft	106 ft	112 ft	115 ft
Time	**Vacuum (inches of water)**							
7:00	122.4	326.3	136.0	0.15	0	0	0	0
7:30	122.4	326.3	136.0	0.15	0	0	0	0
8:00	122.4	326.3	136.0	0.15	0	0	0	0
8:30	122.4	326.3	136.0	0.3	0	0	0	0
9:00	122.4	326.3	136.0	0.65	0	0	0	0
9:30	136.0	339.9	149.5	0.75	0.1	0	0.65	0
10:00	136.0	346.7	156.3	1.15	0.25	0	0.8	0
10:30	149.5	346.7	169.9	1.2	0.25	0	1.0	0
11:00	156.3	353.5	176.7	1.35	0.35	0	1.35	0
11:30	163.1	367.1	176.7	1.3	0.3	0	1.3	0
12:00	163.1	360.3	176.7	1.3	0.3	0	1.3	0
12:30	163.1	360.3	176.7	1.3	0.3	0	1.3	0
13:00	163.1	360.3	176.7	1.3	0.3	0	1.3	0
13:30	163.1	360.3	176.7	1.3	0.3	0	1.3	0
14:00	163.1	353.5	176.7	1.3	0.3	0	1.3	0
14:30	163.1	353.5	176.7	1.3	0.3	0	1.3	0
15:00	163.1	353.5	176.7	1.3	0.3	0	1.3	0

Notes: 1. Radius of influence measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. Stinger Head Vacuum Measurements recorded in inches of mercury

AFVR FIELD DATA SHEET

Terracon		Site: One Stop (SC-576)		Project No.: 73068000			3/22/2012 Temp: 60				Event #: 15		
				VOC Concentrations			Off-Gas Velocity (FPM)				VOC Emissions		
	Start Time hh:mm	End Time hh:mm	Time Interval (min)	Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)	Total Flow (CFM)	Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-20 MW-32	6:00	6:30	30	100,000	100,000	100,000	947	915	931	20.30	23.95	11.97	11.97
	6:30	7:00	30	100,000	100,000	100,000	915	971	943	20.56	24.26	12.13	24.10
	7:00	7:30	30	100,000	100,000	100,000	971	1,001	986	21.49	25.36	12.68	36.79
	7:30	8:00	30	100,000	100,000	100,000	1,001	1,042	1,022	22.27	26.28	13.14	49.92
	8:00	8:30	30	100,000	100,000	100,000	1,042	1,001	1,022	22.27	26.28	13.14	63.06
	8:30	9:00	30	100,000	100,000	100,000	1,001	952	977	21.29	25.12	12.56	75.62
	9:00	9:30	30	100,000	100,000	100,000	952	712	832	18.14	21.40	10.70	86.32
	9:30	10:00	30	100,000	100,000	100,000	712	659	686	14.94	17.63	8.82	95.14
	10:00	10:30	30	100,000	100,000	100,000	659	721	690	15.04	17.75	8.87	104.01
	10:30	11:00	30	100,000	100,000	100,000	721	582	652	14.20	16.76	8.38	112.39
	11:00	11:30	30	100,000	100,000	100,000	582	655	619	13.48	15.91	7.96	120.35
	11:30	12:00	30	100,000	100,000	100,000	655	609	632	13.78	16.26	8.13	128.48
	12:00	12:30	30	100,000	100,000	100,000	609	678	644	14.03	16.55	8.28	136.76
	12:30	13:00	30	100,000	100,000	100,000	678	699	689	15.01	17.71	8.86	145.61
	13:00	13:30	30	100,000	100,000	100,000	699	700	700	15.25	17.99	9.00	154.61
	13:30	14:00	30	100,000	100,000	100,000	700	670	685	14.93	17.62	8.81	163.42

Total Extraction Time..... **8.0** **hours**
Total Liquid Volume..... **880** **gallons**
Total Liquid-phase Hydrocarbon..... **5.0** **gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. **27.7** **gallons**

Total Hydrocarbon Recovery:..... **32.7** **gallons**

TOTAL lbs of VOC emissions = 163.42

Water / Product Levels

Pre Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-20	30.83	--	--
MW-32	33.57	32.6	0.97

Post Event

Well No.	Depth to Water	Depth to Product	Product Thickness
MW-20	28.09	--	--
MW-32	31.33	--	--

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

VACUUM RADIUS OF INFLUENCE

One Stop (SC-576)
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 15 Date: 3-22-12

	Stinger Head Vacuum			MW-40	MW-41	MW-42	MW-43	MW-44
	MW-20	MW-32	System Vacuum	Distance to Nearest Pumped Well				
				65 ft	64.7 ft	77 ft	59 ft	94 ft
Time	**Vacuum (inches of water)**							
6:00	299	408+	313	0	0	0.1	0	0
6:30	299	408+	313	.2	0	0.1	0	0
7:00	299	408+	313	.25	0	0.25	0	0
7:30	299	408+	313	.4	0	0.35	0	0
8:00	299	408+	313	.4	0	0.4	0	0
8:30	299	408+	313	.4	0	0.4	0	0
9:00	306	408+	313	.45	0	0.5	0	0
9:30	306	408+	313	.65	0	0.75	0	0
10:00	313	408+	326	.75	0	0.8	0	0
10:30	313	408+	326	.8	0	0.9	0	0
11:00	313	408+	326	.9	0	0.95	0	0
11:30	313	408+	326	.9	0	0.95	0	0
12:00	313	408+	326	.9	0	0.95	0	0
12:30	313	408+	326	.9	0	0.95	0	0
13:00	313	408+	326	.9	0	0.95	0	0
13:30	313	408+	326	.9	0	0.95	0	0
14:00	313	408+	326	.9	0	0.95	0	0

Notes: 1. Radius of influence measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. Stinger Head Vacuum Measurements recorded in inches of mercury

APPENDIX B

Waste Disposal Manifest

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: C E S Q G

Manifest Document No.: 0 3 4 8 2

2. Page 1 of 1

3. Generator's Name and Mailing Address
Crown Petroleum LLC (Terracon)
P.O. Box 1168
Baltimore, MD 21203-1168

4. Generator's Phone (803) 471-9000

5. Transporter 1 Company Name: Advanced Environmental Options, Inc

6. US EPA ID Number: S C R 0 0 0 0 7 4 5 7 5

A. State Transporter's ID

B. Transporter 1 Phone: (864) 488-9111

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
Advanced Environmental Options,
25 Stan Perkins Road
Spartanburg, SC 29307

10. US EPA ID Number: S C R 0 0 0 0 7 4 5 7 5

E. State Facility's ID

F. Facility's Phone: (864) 488-9111

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. Non-DOT/NON-RCRA Regulated Materials (Contains Water and Hydrocarbons) (APPR000041)	1	T T	0B 93 ~~0 2 0 0 0~~	G
b.	0			
c.	0			
d.	0			

G. Additional Descriptions for Materials Listed Above
a) L/-

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
JOB #8592
Emergency Contact: David Hitchens 864-488-9111, Cell 864-590-4648
1398 gallons

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

X

Printed/Typed Name	Signature	Date Month	Day	Year
Neil Akre	[signature]	3	22	12

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Chris Kirklighter	[signature]	3	22	12

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Kim Garrett	[signature]	3	22	12

GENERATOR

TRANSPORTER

FACILITY

NON-HAZARDOUS WASTE

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LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

06443

January 5, 1994

Mr. Joel Padgett
South Carolina Department of Health
and Environmental Control
Ground-Water Protection Division
2600 Bull Street
Columbia, South Carolina 29201

* Subject: **Assessment Report**
Former Crown Station No. SC 576
200 North Mine Street (SC Hwy 28)
McCormick, South Carolina
GWPD Site I.D. #6443, PCAS #7463
Law Engineering Job No. 56-499-2-4051-03

UST DOCKETING 23 Feed

Dear Mr. Padgett:

On behalf of Crown Central Petroleum Corporation (Crown), Law Engineering presents the attached Assessment Report (AR) for the subject site. The AR describes the assessment activities performed to date and presents the results obtained along with our recommendations.

Crown and Law Engineering appreciate your cooperation in the submission of this document. Please contact us at (803) 798-1200 if you have any questions and/or comments.

Sincerely,

LAW ENGINEERING, INC.

BTShane
Bryan T. Shane, P.G.
Project Geologist

Michael Armour pab
Michael D. Armour, P.G.
Project Hydrogeologist

Brian E. Chew, Sr. /TDB
Brian E. Chew, Sr., P.G.
Principal
Registered, SC #184

Attachments

rec'd 1-14-94 SAS

LAW ENGINEERING, INC.
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1.0 PROJECT INFORMATION

The former Crown Station No. SC 576 gasoline station is located at 200 North Mine Street (SC Hwy 28) in McCormick, South Carolina (Figure 1). Lil' Cricket currently operates the gasoline station and convenience store at this location. Three 8,000-gallon capacity steel underground storage tanks (USTs) located at the site are currently being used for gasoline storage.

A tank assessment conducted by Atlanta Testing & Engineering (AT&E) (report dated November 27, 1989) indicated the presence of petroleum contamination in the soil surrounding the USTs. Four soil/borings/monitoring wells installed during the assessment activities did not encounter ground water.

Law Engineering performed a Ground-Water Contamination Assessment in November 1990. Law Engineering submitted a Report of Ground-Water Contamination Assessment to Crown on August 16, 1991. The assessment activities included drilling and installing four shallow Type II monitoring wells (MW-1, MW-2 MW-4 and MW-5) and one deep Type III monitoring well (MW-6) at the site in March 1991 (Figure 2). Boring MW-3 was not drilled . Well construction permits were obtained from the South Carolina Department of Health and Environmental Control (SCDHEC) prior to construction of the wells. Analysis of ground-water samples collected from three of the four shallow wells (MW-2, MW-4 and MW-5) indicated the presence of free-phase gasoline, and dissolved phase benzene, toluene, ethylbenzene and xylenes (BTEX) constituents in the ground water in concentrations ranging from 94,900 to 237,000 micrograms per liter (ug/L). BTEX constituents were detected in the ground-water sample collected from the deep well (MW-6) at a concentration of 14,100 ug/L.

SCDHEC approved the site for SUPERB funding on January 17, 1992, and issued cost proposal number 0175 for the site.

A Free Product Gauging and Bailing Plan was submitted to SCDHEC on April 22, 1992 and initiated on May 4, 1992. Law Engineering submitted an Expanded Assessment Plan (EAP) to SCDHEC on April 24, 1992. The objective of the EAP was to continue removal of free product from on-site monitoring wells; assess the extent of soil contamination; assess the horizontal and vertical extent of ground-water contamination; and confirm the direction and rate of contaminant migration at the site. SCDHEC approved the EAP on August 10, 1992.

SCDHEC approved the installation of monitoring wells MW-7 through MW-14 , and an automated free product recovery system on August 10,1992.

This report summarizes the assessment activities completed at the site to date.

2.0 FIELD EXPLORATION

Exploration activities at the site have included advancement of soil test borings, construction of ground-water monitoring wells, water level measurements, aquifer testing, ground-water and soil sampling, installation of ground-water recovery wells, and installation of an automated free product recovery system. Information pertaining to assessment activities conducted and reported prior to August 10, 1992, can be found in the reports as referenced in the Project Information Section of this report.

The project site was visited and additional monitoring well locations were selected by Law Engineering personnel between December 15, 1992 and August 10, 1993. The locations of the monitoring wells were selected based on the ground-water flow direction and contaminant levels determined from previous assessment activities. A site survey was performed on November 21, 1992, by K.T. Gould, Inc. Monitoring well elevations were measured by Law Engineering personnel on October 27, 1993 using a surveyor's level and graduated rod and were referenced to an assumed on-site datum elevation assigned a value of 100.00 feet (top of PVC casing at monitoring well MW-1). The monitoring well locations and elevations should be considered accurate only to the degree indicated by these methods. The elevation survey data presented in this report represents a revision of elevation data presented in previous reports.

Between December 8 and December 12, 1992, Type IV ground-water monitoring well MW-13 was installed at the approximate location shown on Figure 2. The monitoring well was installed to a depth of approximately 130 feet to assess the vertical extent of contamination.

On December 11, 1992, SCDHEC approved the installation of additional monitoring wells, three recovery wells, and a total fluids recovery system (versus the previously approved automated free product recovery/skimmer system). The total fluids recovery system was installed between December 19,1992 and February 24, 1993, and consists of 3 total fluids pneumatic pumps, an oil/water separator (serving as a storage tank) and an air compressor.

Type II monitoring wells MW-7 through MW-14 were installed between March 17, and March 22, 1993 at the approximate locations shown on Figure 2.

Law Engineering requested the installation of additional monitoring wells to further delineate the horizontal extent of contamination in May and July of 1993. After subsequent SCDHEC approval, monitoring wells MW-16 through MW-20, and MW-21 and MW-22 were installed between June 7 and June 8, 1993, and August 10, 1993, respectively. The procedures used for soil test boring and monitoring well installations are provided in Appendix A.

Law Engineering conducted a reconnaissance-type water supply well survey in the vicinity of the site on November 15, 1993. The purpose of this survey was to locate potential environmental receptors (water supply wells) within an approximate 1500 foot radius of the site.

3.0 AREA GEOLOGY AND HYDROGEOLOGY

The project site is located in the Piedmont Physiographic Province of South Carolina, an area underlain by ancient igneous and metamorphic rocks. The virgin soils encountered in this area are the residual product of in-place chemical weathering of rock which was similar to the rock presently underlying the site. In areas not altered by erosion or disturbed by the activities of man, the typical residual soil profile consists of near surface clayey soils and underlying sandy silts, silts, and silty sands. The boundary between soil and rock is gradational. A transitional zone termed "partially weathered rock" is normally found overlying the parent bedrock. Partially weathered rock is defined, for engineering purposes, as residual material with standard penetration resistances in excess of 100 blows per foot (bpf). Weathering is facilitated by fractures, joints and the presence of less resistant rock types. Consequently, the topography of the bedrock surface is uneven, even over short horizontal distances. It is not unusual to find lenses and boulders of hard rock and zones of partially weathered rock within the soil mantle, well above the general bedrock level.

Local precipitation is the source of practically all of the ground water in McCormick County. A portion of the precipitation infiltrates into the ground and moves under the influence of gravity to the surficial aquifer. After the water has reached the surficial aquifer, the direction of movement is generally parallel to the hydraulic gradient. In the Piedmont Province, the slope of the surficial aquifer's surface under static conditions (no pumping interference) approximates the topography of an area. Thus, the movement of ground water is typically in the direction of the topographic slope. Local ground-water flow patterns may be affected by disturbed areas such as tank pits, utility trenches, building foundations, borings, wells, etc. The movement of ground water results in discharge to streams, lakes, or springs where the ground water intersects topographic lows occupied by these water bodies.

The site monitoring wells were constructed in the Carolina Slate Belt Geologic Unit. In this geologic setting, the uppermost aquifer for ground-water supply includes two components: soil and crystalline rock. Ground water in the soil occurs under unconfined conditions. Water occupies the interstices between the grains of the residuum or saprolite (weathered rock) and is in hydrostatic balance with the atmosphere at the surface of the surficial aquifer. In the underlying crystalline rocks, ground water occurs in fractures, joints, and other openings in the rock. These openings intersect the top of bedrock and are recharged by ground water in storage in the overlying soil.

4.0 SUBSURFACE CONDITIONS

At the surface, borings MW-7, MW-15 and MW-19 encountered 3 to 4 inches of asphaltic material, borings MW-10, MW-12, MW-13, MW-21 and MW-22 encountered approximately one-foot of grass and topsoil. Fill material was encountered beneath the surficial materials in these borings, with the exception of MW-7, MW-12, MW-13 and MW-15, and at the surface in borings MW-8, MW-9, MW-11 and MW-20 to depths ranging from 2.5 to 12 feet below existing ground surface. The fill material generally consisted of firm to very hard, clayey to sandy silt, and firm coarse silty sand. Residual soils were encountered beneath the fill material (borings MW-8 through MW-11, MW-18 through MW-20, and MW-22), beneath the surficial material in borings MW-12, MW-13 and MW-21, and at the surface in borings MW-14 through MW-17. The residual soils were encountered to depths ranging from 7 to 40 feet below existing ground surface, and generally consisted of firm to very hard, clayey to sandy silts and dense sand. Partially weathered rock (PWR) was encountered beneath the residual soils in borings MW-9, MW-10, MW-13, MW-14, MW-16 through MW-21 and beneath the surficial material in boring MW-7. The PWR was encountered to depths ranging from 17 to 43 feet, and was sampled as sandy silt to fine sand. Due to air drilling, soil samples were not collected from boring MW-15 and recovery well borings RW-1 through RW-3. Generalized subsurface conditions encountered in selected borings are illustrated in profile on Figures 3 and 4. The location of the profile lines are shown on Figure 2.

Ground-water levels were measured in the monitoring wells on March 30, June 10, June 17, September 8, and October 15, 1993. Ground-water fluctuations of up to approximately 13 feet were measured in monitoring wells on site from March 30 to October 15, 1993. The ground-water level measurements are summarized in Table 1 and the June 10, 1993, measurements are presented on the ground-water contour map on Figure 5.

Ground-water levels may fluctuate several feet with seasonal and rainfall variations and with changes in the water level of adjacent drainage features. Normally, the highest ground-water levels occur in late winter and spring. The lowest levels occur in late summer and fall.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records contain detailed information recorded at each monitoring well location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples by a geologist. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual.

5.0 SOIL AND GROUND-WATER SAMPLING AND TESTING

The following sections discuss soil and ground-water sampling and testing activities performed at the site.

5.1 Soil Sampling

Soil samples obtained from soil borings (MW-7 through MW-14 and MW-16 through MW-22) were scanned in the field with an organic vapor analyzer (OVA). OVA measurements ranging from below the detection limit (0.2 parts per million-ppm) to greater than 1000 ppm were observed in the soil samples. The organic vapor measurements (OVM) are shown on the boring records in Appendix B.

One soil sample was obtained from the specific depths in each boring shown in Table 2. These samples were obtained from depths where the highest organic vapor concentrations were detected by the OVA. In addition, a composite soil sample was taken from the soil cuttings stockpile.

5.2 Ground-Water Sampling

The new monitoring wells (MW-7 through MW-22) were developed by surging and bailing, purged and sampled between December 10, 1992 and September 8, 1993. The existing ground-water monitoring wells (MW-1 through MW-6) contained free product and were not sampled. The ground-water samples were sent along with the soil samples to Law Environmental National Laboratories (LENL) in Kennesaw, Georgia for analysis. Well development and ground-water sampling procedures are described in Appendix A.

5.3 Chemical Analysis of Soil Samples

The soil samples collected from borings MW-7 through MW-20 and cuttings stockpile composites B-1 through B-3 were analyzed by LENL for total petroleum hydrocarbons (TPH) by Method 5030. The soil samples collected from borings MW-21 and MW-22 were analyzed by LENL for BTEX and MTBE (EPA Method 8020) and TPH by Method 5030.

The results of laboratory analyses are discussed in Section 6.1 summarized in Table 2 and presented in Appendix C.

5.4 Chemical Analysis of Ground-Water Samples

The ground-water samples collected from monitoring wells MW-7 through MW-22 between December 10, 1992 and September 8, 1993, and the quality assurance blanks were analyzed by LENL for BTEX and methyl-tertiary-butyl ether (MTBE) utilizing EPA Method 602. Based on the results of the April 1, 1993 sampling event, monitoring well MW-13 was determined to have the highest dissolved hydrocarbon contamination in ground water at the site. Monitoring well MW-13 could not be sampled for "worst-case" analysis due to the well being either dry or containing free product during subsequent gauging or sampling events to date. This situation also exists for the on-site wells that could qualify for the "worst-case" analysis. Therefore, the analytical results from the April 1, 1993 sampling event for monitoring well MW-13 are presented as the interim "worst-case" analytical results in Table 3. If seasonal water-level fluctuations permit, a "worst-case" analysis will be performed, and the results presented in a Corrective Action Plan.

The results of the laboratory analyses are discussed in Section 6.2, summarized in Table 4, and presented in Appendix C.

5.5 Inflow Permeability Test

Inflow permeability tests were performed in monitoring wells MW-6 and MW-20 on October 8, 1993, to estimate the hydraulic conductivity of the formation materials (exposed to the screened interval) at the monitoring well locations. Inflow permeability test procedures are describes in Appendix A.

6.0 TEST RESULTS AND EVALUATION

The following sections discuss soil and ground-water analytical results and provides a summary of assessment activities performed at the site.

6.1 Soil Analytical Results

As discussed in Section 5.3, soil samples obtained from the auger cuttings stockpile (B-1 through B-3) and from borings MW-7 through MW-20 were analyzed for TPH, and borings MW-21 and MW-22 were analyzed for BTEX, MTBE and TPH. Results of the analyses indicate that TPH was not detected in any of the soil borings, but was detected in the auger cuttings stockpile sample. The analytical results for boring MW-21 indicate the presence of BTEX and non-detectable concentrations of MTBE. BTEX and MTBE were not detected in soil samples from boring MW-22.

6.2 Ground-Water Analytical Results

As discussed in Section 5.2, ground-water samples were not obtained from existing monitoring wells MW-1 through MW-6 due to the presence of free product in the wells.

As discussed in Section 5.4, ground-water samples obtained from the monitoring wells between December 10, 1992, and September 8, 1993 were analyzed for BTEX and MTBE. Results of the analyses indicate that ground water in monitoring wells MW-7, MW-10, MW-11, MW-13 through MW-15 and MW-20 have been contaminated by the analyzed parameters (see Tables 3 and 4). Ground water in monitoring wells MW-7, MW-13 through MW-15 and MW-20 contained benzene above the South Carolina Action Levels (SCALs). Additionally, the samples collected from wells MW-13, MW-14 and MW-20 contained concentrations of other constituents above the SCALs.

Ground-water analytical results from well MW-13 are presented as interim SCDHEC "worst-case" parameters as discussed in Section 5.4 and are presented in Table 3.

Analytical results from the quality assurance blanks indicate that the parameters analyzed were below laboratory detection limits. The detection limits for each parameter are provided in the laboratory reports (Appendix C).

A computer-generated Total BTEX Isopleth map indicating the approximate location of the dissolved hydrocarbon contamination based on ground-water analytical data from the June 10, 1993 sampling event is provided on Figure 6.

T= b K

6.3 Hydraulic Conductivity

Hydraulic conductivities at the site ranged from 1.2 x 10^{-4} to 2.4 x 10^{-5} cm/sec based on data recorded during the field testing. The test results are as follows:

Well Number	Elevation of Screened Interval (feet)	Type of Material Exposed to Screened Interval	Hydraulic Conductivity (K) (cm/sec)
MW-6	54.89 - 44.89	Silty CLAY	2.4 - 10^{-5}
MW-20	80.3 - 60.3	Sandy SILT	1.2 x 10^{-4}

NOTE:

T= .000 96

Field tests were reduced and the hydraulic conductivities computed using techniques described in NAVFAC Soil Mechanic and Design Manual 7.1 May, 1982, Conditions A and C.

6.4 Ground-Water Movement

Ground-water movement is often related to topography, lithology, elevation of recharge and discharge areas and man-made influences. Referenced ground-water elevations were determined by measuring the top of the monitoring well casing relative to a nearby, on-site datum elevation assigned a value of 100.0 feet (top of PVC casing at monitoring well MW-1), measuring the water level in the monitoring well, and computing the reference elevation of the ground water at the time of measurement. K=7.87 E-7 ft/s

T=Kb

Directions of ground-water flow were interpolated between monitoring wells by comparing the ground-water elevations at those locations considering the factors listed above. Ground-water levels typically fluctuate with seasonal and rainfall variations.

Ground-water elevation data for the June 10,1993 sampling event were plotted and a ground-water contour map prepared (see Figure 5) for this sampling event. The generalized direction of the ground-water flow at the site is to the northeast as shown on Figure 5. The data points used to prepare the ground-water contour map (ground-water elevations in site monitoring wells) are summarized in Table 1.

Hydraulic gradients were determined by dividing the difference in ground-water elevation at two locations by the horizontal distance between the two locations. The average hydraulic gradient at the site was computed to be approximately 0.04 feet/foot.

In addition to hydraulic gradients (i), the rates of ground-water movement (v) are a function of hydraulic conductivity (k) and effective porosity (ne), as indicated by the equation $v=ki/ne$. The effective porosity can be expected to be approximately 10 percent for silty clay to sandy silt. Based on those parameters, the average lateral ground-water movement in the sands at the site can be expected to be approximately 30 feet per year. The rate of migration of the contaminant(s) may be substantially different from that of the ground water (generally slower) but is typically in the same general direction.

6.5 Assessment Summary

Based on the results of our assessment activities, it appears that ground water at the subject site has been contaminated by petroleum. Field level measurements through September 8, 1993, indicate the presence of free-phase petroleum product in monitoring wells MW-1 through MW-6. The laboratory test results indicate that ground-water samples obtained from several monitoring wells have been contaminated by BTEX constituents (Table 4). Concentrations of benzene exceed the South Carolina Maximum Contaminant Level (MCL) in wells MW-7, MW-13, MW-14, MW-15 and MW-20. Monitoring wells MW-13, MW-14 and MW-20 had other constituents

which exceeded the MCL's (see Table 4). The horizontal extent of BTEX contamination in the ground water is reasonably defined in all directions around the site with the exception of the monitoring well MW-11 area (benzene concentrations were not detected in monitoring well MW-11. The vertical extent of contamination was reasonably defined by well MW-15. Therefore, it appears that the horizontal and vertical extents of ground-water contamination have been reasonably defined.

Based on the results of chemical analyses and OVA measurements performed on soil samples collected from the borings, and the results reported in previously submitted reports for borings MW-1 through MW-6, it appears that soil contamination in the unsaturated zone is confined to the area immediately surrounding the USTs at the site.

7.0 REMEDIATION ALTERNATIVES

Review of subsurface conditions and published geologic literature for the site indicate that anisotropic conditions of the soils and aquifer system exist at the site. Migration of contaminants in the aquifer has occurred. In order to contain the plume and to mitigate further contaminant migration, Law Engineering proposes that a pump and treat and air sparging system be used to hydraulically control and treat the contaminated ground water at the site. The pump and treat system will be composed of a ground-water recovery system to create hydraulic control and to remove the contaminated ground water from the aquifer and a treatment system to remove the contaminants from the recovered ground water. In addition, an air sparging system will be used to accelerate remediation of dissolved-phase contamination. The air sparging system will consist of a series of injection wells, a control panel and an oil-free air compressor. The product recovery system currently operating at the site can be modified and expanded into a pump and treat system. Following treatment of the water, it will be discharged off-site. We believe that reinjection of the waste water into the aquifer would be impractical due to the low permeability soils and space limitations existing at the site. Law Engineering received approval on April 7,1993 to enter into an agreement with the City of McCormick Commissioners of Public Works for the discharge of up to 2700 gallons of treated ground water per day into the Publicly Owned Treatment Works (POTW) located at Rocky Creek Wastewater Treatment Plant. However, further negotiations will be necessary to finalize the flow and constituent concentration limitations.

In order to address remediation of the soil contamination present on site, Law Engineering submitted a cost proposal amendment on March 12, 1993 for the construction and installation of a vapor extraction system within the subject service station's operational area.

We believe that the pump and treat and air sparging system in conjunction with the vapor extraction system discussed above will remediate the soil and ground-water contamination caused by the release of gasoline from the former Crown Station No. SC 576.

8.0 RECOMMENDATIONS

Law Engineering recommends that a Corrective Action Plan (CAP) be prepared for the subject site. The CAP will be prepared in accordance with SCDHEC's December 20, 1990 Remediation Guidance Document. Law Engineering can prepare and submit the CAP within six weeks following approval of this report by SCDHEC. Once approval of the CAP is granted by SCDHEC, Law Engineering will prepare an Engineering Report for construction of the system. The ER will take approximately six weeks for completion and submittal to SCDHEC.

Done

Prior to and following implementation of the CAP, we recommend that a quarterly ground-water monitoring program be initiated to monitor the migration of the plume. The monitoring program will include:

- Quarterly field measurements of ground-water levels in the monitoring wells to monitor the hydraulic gradient and ground-water flow direction.
- Quarterly sampling and laboratory testing of ground water from the monitoring wells to monitor changes in contaminant concentrations and possible migration of the contaminant plume. Laboratory testing will be performed for petroleum-related ground-water contaminants (BTEX and MTBE) using EPA Method 602. A quarterly sampling data submittal will be issued to Crown and SCDHEC after each sampling event.

A cost proposal of for implementation of the above activities is provided separately with this report.

9.0 QUALIFICATION OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste-management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpolation of subsurface data between borings.

TABLES

TABLE 1

GROUND-WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
201 SOUTH MINE STREET
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING JOB NO. 499-2-4051-03

Well Number	Measurement Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to Ground Water (feet)	Product Thickness (feet)	Ground-Water Elevations (feet)*
MW-1	03/30/93	100.00	12.20	17.48	5.28	86.43*
	06/10/93		15.11	20.85	5.74	83.40*
	06/17/93		15.81	20.03	4.22	83.09*
	10/15/93		26.26	>30.00	>3.74	<70.00
MW-2	03/30/93	98.76	11.64	14.14	2.5	86.47*
	06/10/93		14.29	15.21	0.92	84.23*
	06/17/93		15.10	15.15	0.05	83.65*
	10/15/93		--	25.41	--	73.35
MW-4	03/30/93	101.00	11.65	14.80	3.15	88.53*
	06/10/93		15.74	20.15	4.41	84.11*
	06/17/93		16.55	16.88	0.33	84.36*
	10/15/93		--	dry	--	<75.30
MW-5	03/30/93	101.63	14.54	17.18	2.64	86.40*
	06/10/93		17.45	17.56	0.11	84.15*
	06/17/93		18.07	18.29	0.22	83.50*
	10/15/93		27.51	>32.90	>5.39	<72.72*
MW-6	03/30/93	99.89	--	13.60	--	86.29
	06/10/93		16.76	16.77	0.01	83.13*
	06/17/93		--	17.50	--	82.39
	10/15/93		--	26.85	--	73.04
MW-7	03/30/93	100.40	--	9.90	--	90.50
	06/10/93		--	16.20	--	84.20
	06/17/93		--	17.03	--	83.37
	10/15/93		--	dry	--	<80.76
MW-8	03/30/93	103.31	--	15.40	--	87.91
	06/10/93		--	18.38	--	84.93
	06/17/93		--	19.10	--	84.21
	10/15/93		--	dry	--	<82.95
MW-9	03/30/93	98.61	--	11.88	--	86.73
	06/10/93		--	15.23	--	83.38
	06/17/93		--	15.86	--	82.75
	10/15/93		--	dry	--	<80.29
MW-10	03/30/93	92.79	--	12.18	--	80.61
	06/10/93		--	13.79	--	79.00
	06/17/93		--	14.43	--	78.36
	10/15/93		--	dry	--	<74.54
MW-11	03/30/93	85.22	--	5.13	--	80.09
	06/10/93		--	8.83	--	76.39
	06/17/93		--	9.41	--	75.81
	10/15/93		--	dry	--	<69.82
MW-12	03/30/93	94.39	--	12.03	--	82.36
	06/10/93		--	15.55	--	78.84
	06/17/93		--	16.16	--	78.23
	10/15/93		--	dry	--	<71.23
MW-13	03/30/93	97.70	--	11.52	--	86.18
	06/10/93		14.20	14.29	0.09	83.48*
	06/17/93		15.03	16.14	1.11	82.38*
	10/15/93		--	dry	--	<73.02

TABLE 1

GROUND-WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
201 SOUTH MINE STREET
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING JOB NO. 499-2-4051-03

Well Number	Measurement Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to Ground Water (feet)	Product Thickness (feet)	Ground-Water Elevations (feet)*
MW-14	03/30/93	100.04	==	9.00	==	91.04
	06/10/93		==	9.75	==	90.29
	06/17/93		==	9.83	==	90.21
	10/15/93		==	dry	==	<79.73
MW-15	03/30/93	99.53	==	13.51	==	86.02
	06/10/93		==	16.83	==	82.70
	06/17/93		==	17.54	==	81.99
	10/15/93		==	25.57	==	73.96
MW-16	06/10/93	100.00	==	17.29	==	82.71
	06/17/93		==	18.03	==	81.97
	10/15/93		==	23.20	==	76.80
MW-17	06/10/93	96.25	==	14.38	==	81.87
	06/17/93		==	15.19	==	81.06
	10/15/93		==	22.84	==	73.41
MW-18	06/10/93	95.17	==	14.30	==	80.87
	06/17/93		==	14.93	==	80.24
	10/15/93		==	22.75	==	72.42
MW-19	06/10/93	94.02	==	13.13	==	80.89
	06/17/93		==	13.80	==	80.22
	10/15/93		==	dry	==	<71.71
MW-20	06/10/93	98.30	==	20.51	==	77.79
	06/17/93		==	21.26	==	77.04
	09/08/93		==	28.00	==	70.30
	10/15/93			33.10	==	65.20
MW-21	09/08/93	97.08	==	34.28	==	62.80
	10/15/93		==	35.86	==	61.22
MW-22	09/08/93	100.3	==	30.96	==	69.34
	10/15/93		==	33.00	==	67.30

NOTES:

1. Elevations are referenced to an assumed site datum.
2. Ground-water depths were measured from the top of the PVC riser pipe.
3. Ground-water depths and fuel thicknesses were obtained using an oil/water interface probe manufactured by ORS.
4. MW-6 and MW-15 are Type III (deep) and Type IV (deep) monitoring wells, respectively.

*Adjusted ground-water elevation based on a specific gravity for fuel of 0.74.

Prepared by: MDA Date: 10/20/93

Checked by: BEC Date: 11/30/93

TABLE 2

SOIL ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
201 SOUTH MINE STREET
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING JOB NO. 499-2-4051-03

Boring Number	Sample Date	Sample Depth (feet)	TPH 8030 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	MTBE (mg/kg)
B-1 thru B-3	03/01/93	composite	130						
MW-7	03/17/93	23.5-25	ND						
MW-8	03/22/93	3.5-5	ND						
MW-9	03/22/93	3.5-5	ND						
MW-10	03/23/93	8.5-10	ND						
MW-11	03/18/93	8.5-10	ND						
MW-12	03/23/93	18.5-20	ND						
MW-13	03/23/93	8.5-10	ND						
MW-14	03/22/93	13.5-15	ND						
MW-16	06/07/93	25	ND						
MW-17	06/08/93	25	ND						
MW-18	06/08/93	25	ND						
MW-19	06/09/93	25	ND						
MW-20	06/10/93	40	ND						
MW-21	08/10/93	28.5-30	ND	1.7	5.2	ND	ND	6.9	ND
MW-22	08/10/93	18.5-20	ND	ND	ND	ND	ND	ND	ND
Trip Blank	03/23/93	--	ND						

NOTES:

1. ND = Not Detected
2. MTBE = methyl-tertiary-butyl ether
3. mg/kg = milligrams per kilogram
4. MW-6 and MW-15 are Type III (deep) and Type IV (deep) monitoring wells, respectively.

Prepared by: MDA Date: 11/05/93

Checked by: BEC Date: 11/30/93

TABLE 3

WORST-CASE" ANALYSIS OF MW-13
FORMER CROWN STATION NO. SC 576
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NO. 499-2-4051-03

Parameter	Results (ug/l)
Benzene	20,000
Toluene	35,000
Ethylbenzene	3,000
Xylenes (total)	15,000
Methyl-tertiary-butyl ether	2,300

NOTES:

1. ND = Not Detected
2. ug/l = micrograms per liter

Samples collected on April 1, 1993.

Prepared by: MDA Date: 11/15/93

Checked by: BEC Date: 12/01/93

TABLE 4

GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
201 SOUTH MINE STREET
LAW ENGINEERING JOB NO. 499-2-4051-03

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-1	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
MW-2	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
MW-3	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
MW-4	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
MW-5	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
MW-6	06/10/93	NS	NS	NS	NS	NS	NS
MW-7	04/01/93	170	38	130	220	558	11
	06/10/93	17	ND	ND	9.6	26.6	ND
MW-8	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
MW-9	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
MW-10	04/01/93	ND	1.7	ND	3.1	4.8	ND
	06/10/93	ND	ND	ND	ND	ND	ND
MW-11	04/01/93	ND	5.9	5.6	33	44.5	7.9
	06/10/93	ND	ND	ND	3.4	3.4	ND
MW-12	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
MW-13	04/01/93	20,000	35,000	3,000	15,000	73,000	2,300
	06/10/93	NS	NS	NS	NS	NS	NS
MW-14	04/01/93	620	3,600	500	2,900	7,620	ND
	06/10/93	43	35	25	270	373	ND

TABLE 4

GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
201 SOUTH MINE STREET
LAW ENGINEERING JOB NO. 499-2-4051-03

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-15	12/10/92 (85')	3,400	22	ND	400	3822	350
	12/10/92 (100')	4,300	ND	ND	150	4450	570
	12/15/92 (130')	3,100	5.2	15	200	3320.2	430
	04/01/93	1.0	ND	2.4	ND	3.4	220
	06/10/93	26	ND	ND	ND	26	59
MW-16	06/10/93	ND	ND	ND	ND	ND	14
MW-17	06/10/93	ND	ND	ND	ND	ND	ND
MW-18	06/10/93	ND	ND	ND	ND	ND	ND
MW-19	06/10/93	ND	ND	ND	ND	ND	ND
MW-20	06/10/93	16,000	31,000	3,100	15,000	65,100	2,800
MW-21	09/08/93	ND	ND	ND	ND	ND	ND
MW-22	08/17/93	ND	ND	ND	ND	ND	ND
Trip Blank	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	09/08/93	ND	ND	ND	ND	ND	ND
Bailer Blank	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
SC Action Level		5	1,000	700	10,000	–	

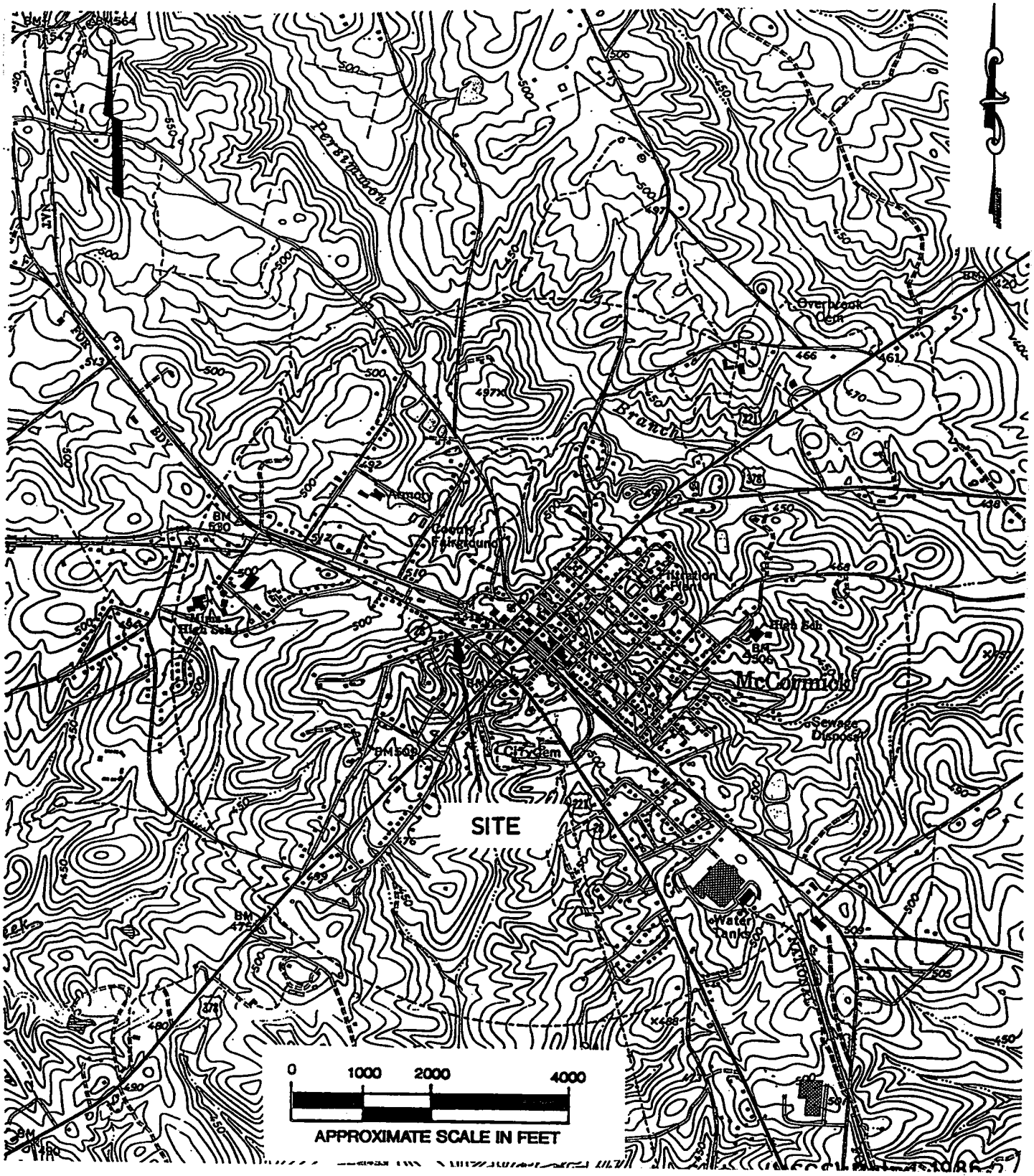
Prepared by: MDA Date: 10/21/93

Checked by: BEC Date: 12/01/93

NOTES:

1. ND = Not Detected
2. NS = Not sampled due to presence of free product, or well was considered dry.
3. MTBE = Methyl-tertiary-butyl ether
4. ug/l = micrograms per liter
5. MW-6 and MW-15 are Type III (deep) and Type IV (deep) monitoring wells, respectively.

FIGURES

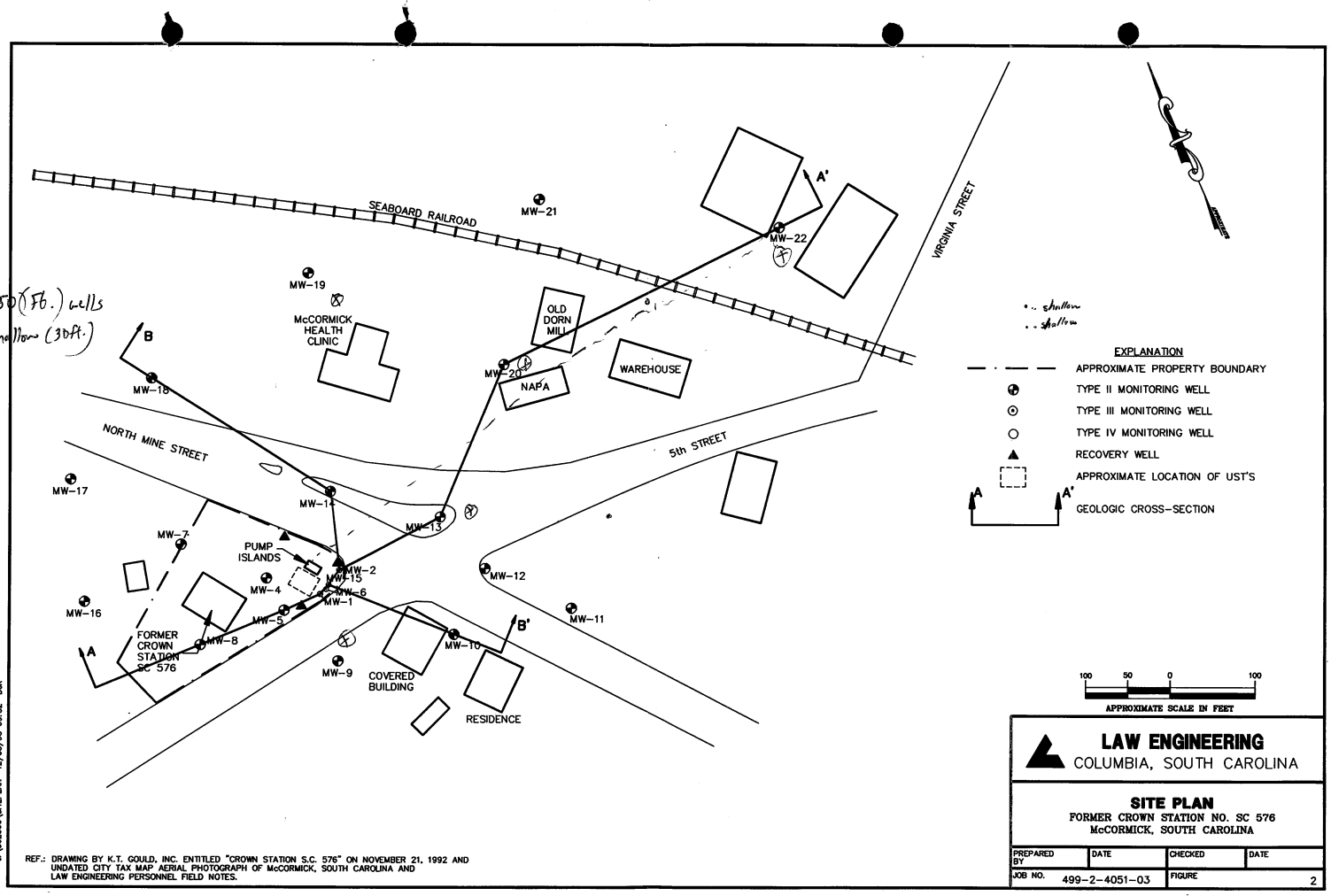


REF.: U.S.G.S. 7.5 MIN. TOPOGRAPHIC MAP, SOUTH CAROLINA, McCORMICK QUADRANGLE, DATED 1986.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

SITE LOCATION MAP
FORMER CROWN STATION NO. SC 576
McCORMICK, SOUTH CAROLINA

PREPARED BY	DATE	CHECKED	DATE	JOB NO. 499-2-4051-03	FIGURE 1



5-(50(ft.) wells
2- shallow (30ft.)

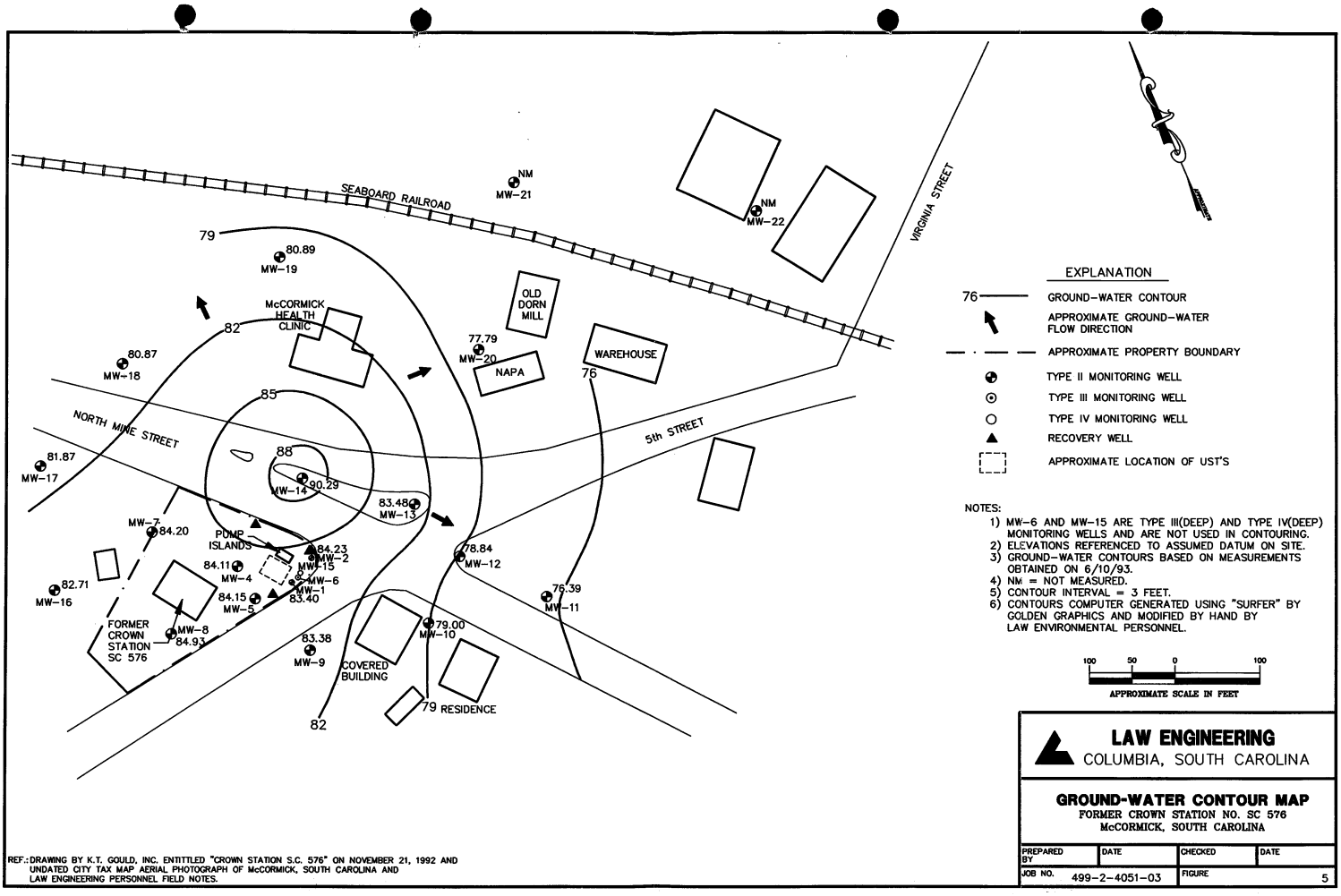
REF.: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP AERIAL PHOTOGRAPH OF McCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

SITE PLAN
FORMER CROWN STATION NO. SC 576
McCORMICK, SOUTH CAROLINA

PREPARED BY	DATE	CHECKED	DATE
JOB NO. 499-2-4051-03		FIGURE 2	

I:\562660\SITEPLAN 12/03/93 09:52 DJK



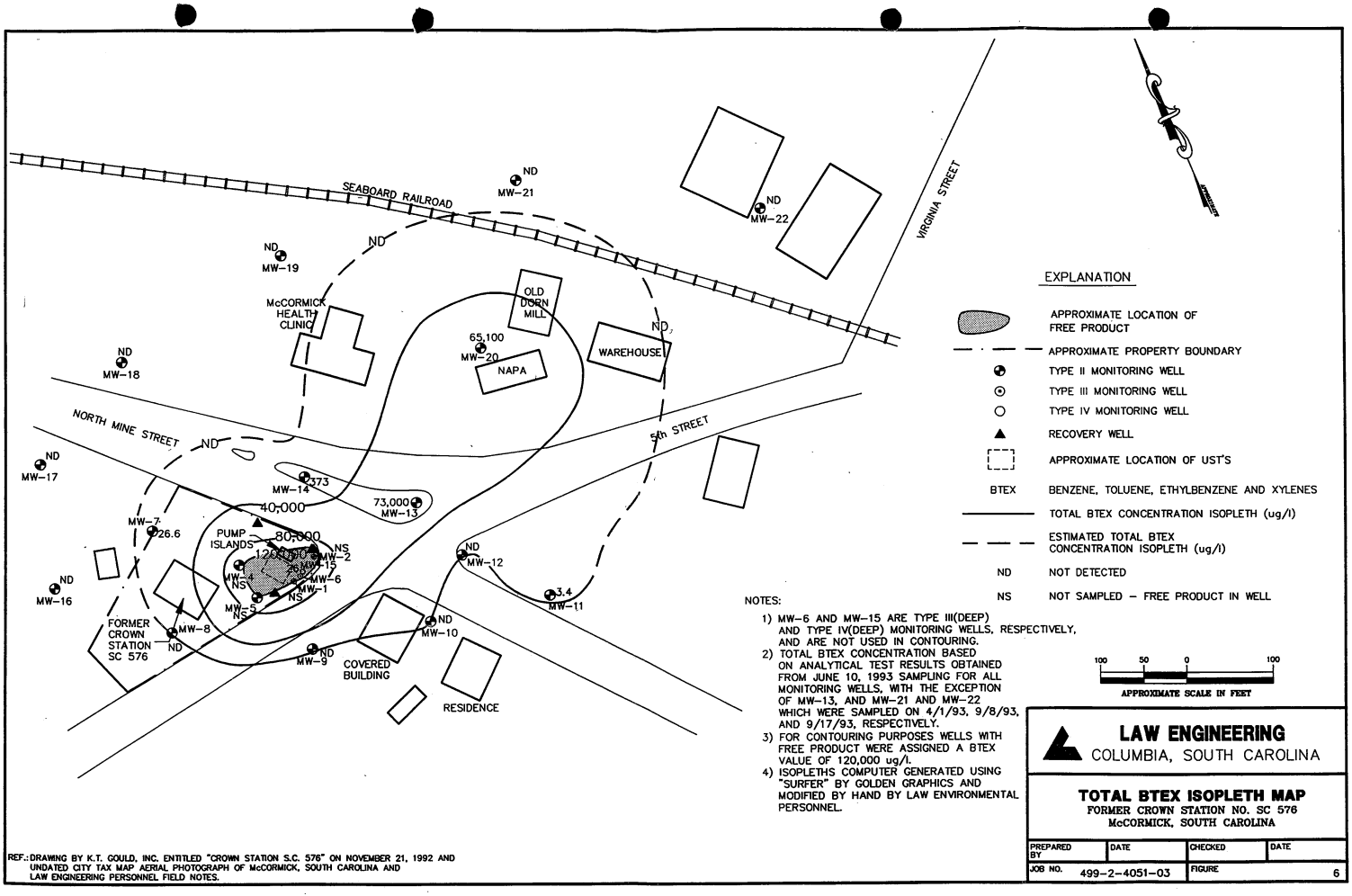
REF.: DRAWING BY K.T. GOULD, INC. ENTITTLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP AERIAL PHOTOGRAPH OF McCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

GROUND-WATER CONTOUR MAP
FORMER CROWN STATION NO. SC 576
McCORMICK, SOUTH CAROLINA

PREPARED BY	DATE	CHECKED	DATE
JOB NO. 499-2-4051-03		FIGURE 5	

J:\50260\GWCM 11/12/93 14:01 DJK



EXPLANATION

- APPROXIMATE LOCATION OF FREE PRODUCT
- APPROXIMATE PROPERTY BOUNDARY
- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- TYPE IV MONITORING WELL
- RECOVERY WELL
- APPROXIMATE LOCATION OF UST'S
- BTEX — BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES
- TOTAL BTEX CONCENTRATION ISOPLETH (ug/l)
- ESTIMATED TOTAL BTEX CONCENTRATION ISOPLETH (ug/l)
- ND — NOT DETECTED
- NS — NOT SAMPLED – FREE PRODUCT IN WELL

NOTES:

1) MW-6 AND MW-15 ARE TYPE III(DEEP) AND TYPE IV(DEEP) MONITORING WELLS, RESPECTIVELY, AND ARE NOT USED IN CONTOURING.
2) TOTAL BTEX CONCENTRATION BASED ON ANALYTICAL TEST RESULTS OBTAINED FROM JUNE 10, 1993 SAMPLING FOR ALL MONITORING WELLS, WITH THE EXCEPTION OF MW-13, AND MW-21 AND MW-22 WHICH WERE SAMPLED ON 4/1/93, 9/8/93, AND 9/17/93, RESPECTIVELY.
3) FOR CONTOURING PURPOSES WELLS WITH FREE PRODUCT WERE ASSIGNED A BTEX VALUE OF 120,000 ug/l.
4) ISOPLETHS COMPUTER GENERATED USING "SURFER" BY GOLDEN GRAPHICS AND MODIFIED BY HAND BY LAW ENVIRONMENTAL PERSONNEL.

100 50 0 100
APPROXIMATE SCALE IN FEET

REF.: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP AERIAL PHOTOGRAPH OF McCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

TOTAL BTEX ISOPLETH MAP

FORMER CROWN STATION NO. SC 576
McCORMICK, SOUTH CAROLINA

PREPARED BY	DATE	CHECKED	DATE
JOB NO. 499-2-4051-03		FIGURE 6	

J:\562660\BTEX 11/12/93 13:59 DAK

APPENDIX A

Field Procedures

FIELD PROCEDURES

Soil Test Borings

The borings were drilled using a truck-mounted drill rig employing continuous flight hollow-stem steel augers to advance the borehole. Soil sampling and penetration testing were performed in general accordance with ASTM D-1586. At regular intervals, soil samples were obtained with a standard 1.4-inch I.D., 2-inch O.D., split-spoon sampler.

Representative portions of the soil samples recovered from the borings were scanned with an organic vapor analyzer (OVA) and classified in the field by Law personnel. Test Boring Records showing the soil descriptions and penetration resistances for each boring are included in this report. To reduce the potential for cross-contamination between borings, all downhole drilling equipment was steam-cleaned prior to drilling each boring. The split spoon sampler was washed with detergent and rinsed with distilled water prior to obtaining each soil sample.

Monitoring Well Installation

The Type II ground-water monitoring wells consist of 2-inch diameter PVC pipe (Schedule 40 with flush-threaded joints) inserted into a 10-inch diameter augered borehole. The bottom 10 to 15 foot section of each monitoring well is a manufactured well screen with 0.010-inch slots. The well screen was set to intercept the saturated/unsaturated zone interface encountered at the time of drilling. Washed sand backfill was placed around the outside of the pipe to a minimum of one foot above the top of the well screen. The sand backfill is used to stabilize the formation and to help yield a less turbid ground-water sample.

The Type IV monitoring well (MW-15) installation consists of a 12-inch diameter borehole advanced through the overburden soils to a depth of 40 feet below ground surface utilizing an air rotary drilling procedure. Eight-inch diameter PVC pipe was installed to the termination depth of the borehole. The annular space between the borehole and the 8-inch PVC pipe was grouted with a cement/bentonite grout to near ground surface and allowed to cure overnight.

After the grout in the 8-inch PVC casing had cured, a 7-7/8-inch diameter borehole was then advanced to approximately 33 feet below the bottom of the 8-inch casing using air rotary drilling procedures. Six-inch diameter PVC pipe was installed to the termination depth of the borehole. The annular space between the 8-inch PVC casing and the six-inch PVC pipe was grouted with a cement/bentonite grout to near ground surface and allowed to cure overnight.

After the grout in the six-inch PVC casing had cured, a 5-1/2-inch diameter borehole was then advanced to approximately 57 feet below the bottom of the six-inch casing using air rotary drilling procedures. Two-inch diameter PVC casing with a 5-foot screened section (0.010-inch slots) at the bottom was installed through the 6-inch casing and into the air rotary drilled borehole. A sand pack was constructed around the outside of the pipe to approximately one foot above the top of the well screen.

A bentonite seal (minimum 1-foot thick) was installed on top of the sand backfill in the Type II and Type IV monitoring wells to seal the monitoring wells at the desired level. The boreholes were then grouted with a cement/bentonite grout to the ground surface. A steel protective flush-mounted or stickup cover and a lockable cap was placed over each monitoring well.

Measuring point and ground-water elevations were determined by measuring the top of each PVC well casing relative to a nearby assumed elevation, measuring the water level in each monitoring well and computing the reference elevation of the ground water at the time of measurement.

Recovery Well Installation

The recovery well installation consists of advancing air rotary drilled boreholes to a predetermined design depth. Four-inch diameter PVC casing with a 55-foot screened section (0.010-inch slots) at the bottom was installed to the termination depth of the boreholes. A sand pack was constructed around the outside of the pipe to approximately one foot above the top of the well screen. A bentonite seal (minimum 1-foot thick) was installed on top of the sand backfill to seal the recovery well at the desired level. The boreholes were then grouted with a

cement/bentonite grout to the ground surface. A steel protective flush-mounted 2 foot by 2 foot steel vault was placed over each recovery well.

Well Development and Ground-Water Sampling

Following stabilization of the water levels in the monitoring wells, water levels were measured with an electric water-level indicator to determine depth to the water surface. The measured water depth was used in conjunction with the total casing depth to determine the height of the water column and the volume of water standing in each monitoring well.

The monitoring wells were developed by surging and bailing until the water's turbidity was reduced and we determined that each monitoring well was functioning properly. Bailing was continued until a volume of water equal to at least three times the volume of water in the well casing under static conditions was removed or until all accessible well water was evacuated.

The monitoring wells were developed and sampled using laboratory-cleaned disposable bailers. Bailer rinse blanks were obtained for quality assurance purposes. Before taking the first ground-water sample, distilled water was poured into a disposable bailer and a rinseate sample was collected (bailer blank). The ground-water samples and quality assurance blanks were marked with identifying numbers placed in a refrigerated container and shipped by an overnight carrier to Law Environmental National Laboratories (LENL) in Kennesaw, Georgia for analysis. Appropriate chain-of-custody records were maintained.

Inflow Permeability Tests

Inflow permeability tests were performed in selected monitoring wells to estimate the hydraulic conductivity of the formation materials exposed to the screened interval at the monitoring well location. Hydraulic conductivity is a constant of proportionality relating to the ease with which a fluid passes through a porous medium. The field procedure to calculate the hydraulic conductivity is as follows:

- measure the depth to the ground water;
- remove water from the borehole by bailing; and
- measure the ground-water recovery rate.

The hydraulic conductivity was calculated by computer using techniques described in NAVFAC Soil Mechanics Design Manual 7.1 May, 1982, Conditions A and C.

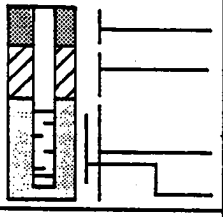
APPENDIX B

Test Boring Records

KEY TO CLASSIFICATION & SYMBOLS

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	No. of Blows, N	Relative Density*		No. of Blows,N	Consistency*
SANDS	0 - 4	Very Loose	SILTS AND CLAYS	0 - 1	Very Soft
	5 - 10	Loose		2 - 4	Soft
	11 - 20	Firm		5 - 8	Firm
	21 - 30	Very Firm		9 - 15	Stiff
	31 - 50	Dense		16 - 30	Very Stiff
	50+	Very Dense		30+	Hard

SYMBOLS	DESCRIPTIONS
■	Undisturbed Sample (UD) Recovered
▯	Undisturbed Sample (UD) Attempted, Not Recovered
50=2"	No. of Blows (50) to Drive the Spoon a Number of Inches (2)
BQ,BX(BW),NQ,NX(NW), HQ,PQ	Core Barrel Sizes Which Yield Cores of Diameter 1-7/16, 1-21/32, 1-7/8, 2-5/32, 2-1/2, and 3-11/16 Inches, Respectively
RQD	Rock Quality Designation - Percentage of Recovered Cored Length Consisting of Moderately Hard or Harder Core Segments 4 or More Inches Long
▽	Water Table Approximately 24 Hours or More After Drilling
▽	Water Table Approximately at Time of Drilling (Within 1 Hour)
▼	Loss of Drilling Fluid
	Grout Bentonite Sand Slotted Screen
OVM	Organic Vapor Measurement
PPM	Parts Per Million
ND	Not Detected

SAMPLING PROCEDURES

The Standard Penetration Resistance is the No. of Blows of a 140-Pound Hammer Falling 30 Inches To Drive a 2-Inch O.D., 1.4 I.D. Split Tube Sampler One Foot.

The Undisturbed Sampling Procedure is Described by ASTM Specification D 1587-67.

* Terminology may be altered if presence of gravel, cobbles or boulders interferes with accurate measurement of standard penetration resistances

TEST BORING RECORD

DATUM ELEVATION: 100.97 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS7.PL3 CLP-36 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
101.0	0.0	Asphalt	
		Partially Weathered Rock (PWR) Sampled as Pink, Orange, Fine to Coarse Sandy SILT, with Gravel Size Rock Fragments and Kaolinite.	ND
96.0	5.0		
			3.0
91.0	10.0		
			3.0
86.0	15.0		
			5.0
81.0	20.0		
		Hard, Pink-Orange Fine Sandy SILT with Gravel Sized Rock Fragments and Kaolinite.	8.0
76.0	25.0		
		Partially Weathered Rock Sampled as Pink-Orange Fine to Coarse Sandy SILT with Gravel Size Rock Fragments.	4.0
71.0	30.0	Boring Terminated at 28.5 Feet. Monitoring Well Installed to 19.64 Feet. Depth to Ground Water Measured at 16.77 Feet on 6/10/93.	
66.0	35.0		
61.0	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/5"

50/4"

50/6"

50/6"

50/2"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-7
LOGGED BY	MSP	DATE STARTED	3-17-93
CHECKED BY	MDA	DATE COMPLETED	3-18-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 103.30 Ft.

T:\DOSAPPS\PLOTLOG\LOGSICS8.PL3 CLP-29 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
103.3	0.0	Fill, Hard, Dark Red-Brown, Fine Sandy Clayey SILT.	2.2
98.3	5.0	Residuum, Stiff, Dark Red-Brown, Light Brown, Clayey, Very Fine Sandy SILT.	0.2
93.3	10.0	Stiff, Dark Red-Brown, Slightly Clayey Very Fine Sandy SILT with Numerous White Hairlined Veinlets.	ND
88.3	15.0	Firm, Dark Red-Brown, Slightly Clayey Very Fine Sandy SILT with Numerous White Hairlined Veinlets.	2.0
83.3	20.0	Boring Terminated at 20.0 Feet. Monitoring Well Installed to 20.0 Feet. Depth to Ground Water Measured at 18.37 on 6/10/93.	
78.3	25.0		
73.3	30.0		
68.3	35.0		
63.3	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-8
LOGGED BY	MSP	DATE STARTED	3-22-93
CHECKED BY	MDA	DATE COMPLETED	3-22-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 98.54 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS9.PL3 CLP-27 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
98.5	0.0	Fill - Very Hard, Dark Red-Brown, Clayey SILT	30
93.5	5.0		
88.5	10.0	Residuum - Stiff Red-Brown, Brown, Slightly Clayey, Very Fine To Fine Sandy SILT.	4.0
83.5	15.0		3.0
		Partially Weathered Rock Sampled as Brown to Light Brown, Fine to Coarse Sandy SILT, with Quartz Veins.	4.5
78.5	20.0	Boring Terminated at 18.5 Feet. Monitoring Well Installed to 18.0 Feet. Depth to Ground Water Measured at 15.16 Feet on 6/10/93.	
73.5	25.0		
68.5	30.0		
63.5	35.0		
58.5	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/4"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-9
LOGGED BY	MSP	DATE STARTED	3-22-93
CHECKED BY	MDA	DATE COMPLETED	3-22-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 92.91 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS10.PL3 CLP-26 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
92.9	0.0	Topsoil	
		Fill - Dark Red Brown Moist Fine Sandy Clayey SILT	
		Residuum - Hard Red-Brown, Brown Fine to Medium Sandy SILT.	ND
87.9	5.0		
		Very Stiff Red-Brown and White Fine to Medium Sandy SILT.	ND
82.9	10.0		
		Partially Weathered Rock Sampled as Brown and Light Brown Fine to Medium Sandy SILT.	ND
77.9	15.0		
		Boring Terminated at 18.5 Feet. Monitoring Well Installed to 18.0 Feet. Depth to Ground Water Measured at 13.91 Feet on 6/10/93.	ND
72.9	20.0		
67.9	25.0		
62.9	30.0		
57.9	35.0		
52.9	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/5"

50/4"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-10
LOGGED BY	MSP	DATE STARTED	3-23-93
CHECKED BY	MDA	DATE COMPLETED	3-23-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 85.44 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS11.PL3 CLP-27 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
85.4	0.0	Fill - Firm Pink-Orange Clayey SILT.	
80.4	5.0		ND
		Fill - Firm Pink-Orange Dark Grey Clayey SILT.	
75.4	10.0		1.0
		Residuum - Stiff Pink-Orange with White Layers, Slightly Clayey Very Fine Sandy SILT.	
70.4	15.0		8.0
			5.0
65.4	20.0	Boring Terminated at 20.0 Feet. Monitoring Well Installed to 15.0 Feet. Ground Water at 9.05 Feet on 6/10/93.	
60.4	25.0		
55.4	30.0		
50.4	35.0		
45.4	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

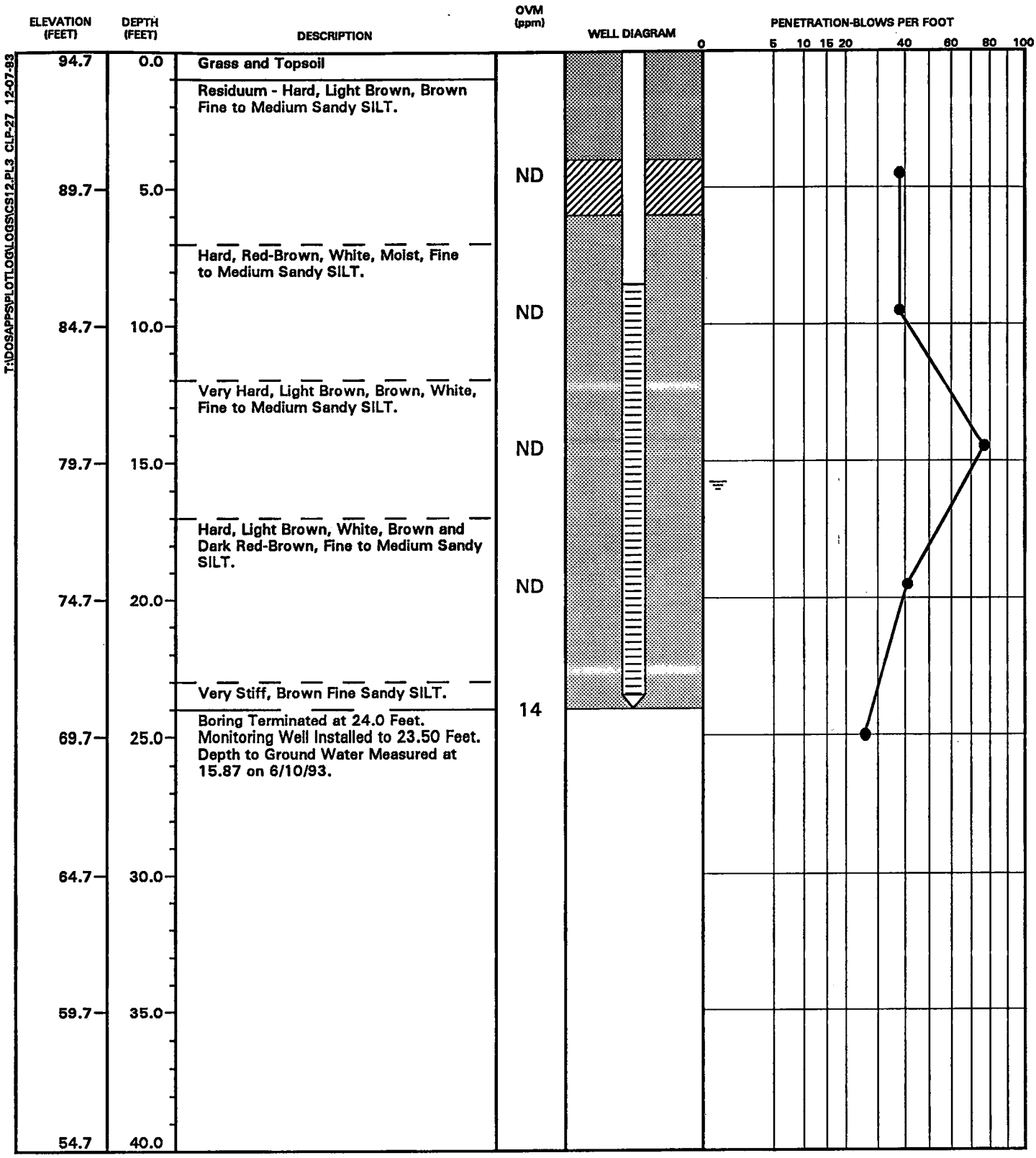
REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-11
LOGGED BY	MSP	DATE STARTED	3-18-93
CHECKED BY	MDA	DATE COMPLETED	3-18-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 94.71 Ft.



REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-12
LOGGED BY	MSP	DATE STARTED	3-23-93
CHECKED BY	MDA	DATE COMPLETED	3-23-93
		JOB NUMBER	499-2-4051-03

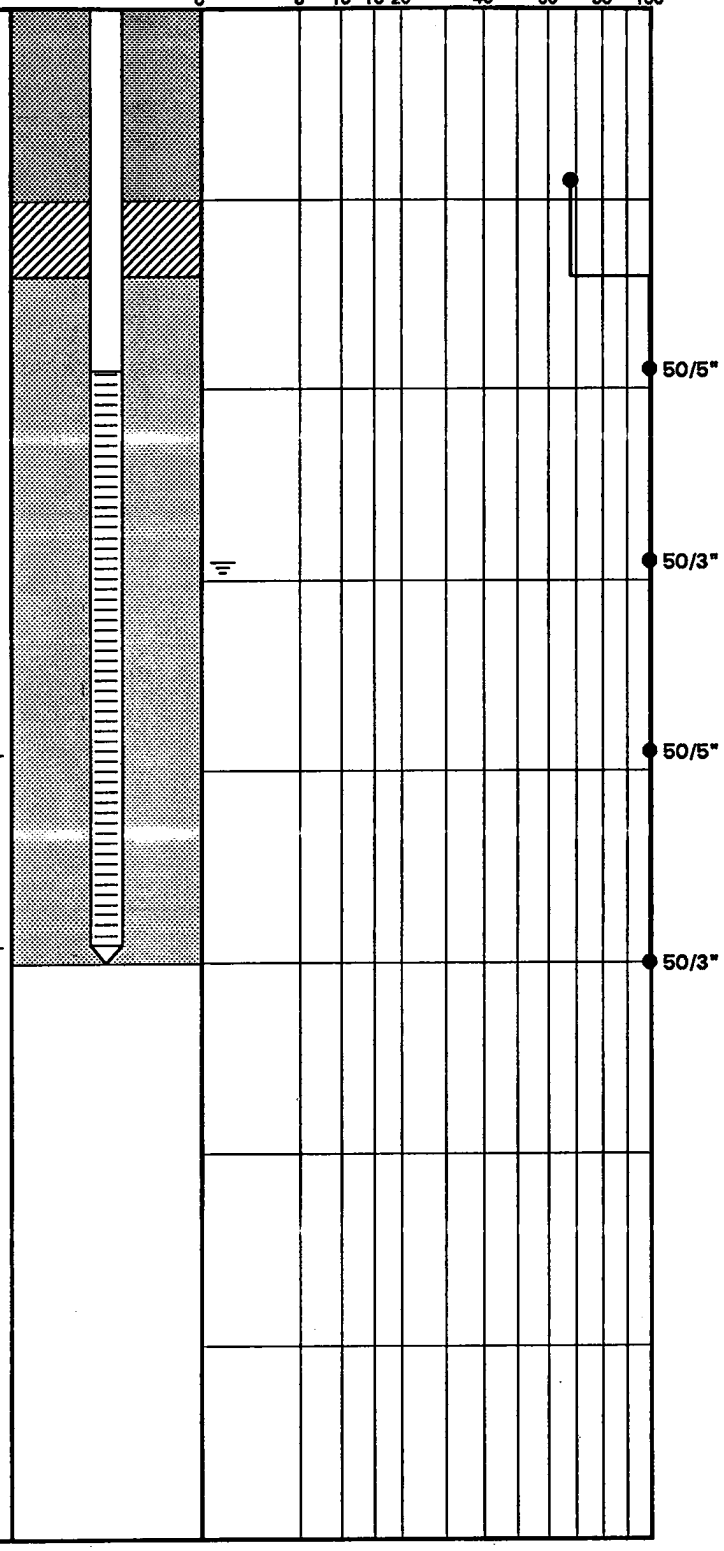
Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 98.07 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS13.PL3 CLP-27 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
98.1	0.0	Grass and Topsoil	
		Residuum - Very Hard, Light Brown, Brown, Fine to Medium Sandy SILT.	6.5
93.1	5.0		
		Partially Weathered Rock Sampled as Light Brown, Brown, Fine to Medium Sandy SILT.	25
88.1	10.0		
			16
83.1	15.0		
			1000 +
78.1	20.0		
			1000 +
73.1	25.0	Boring Terminated at 25.0 Feet. Monitoring Well Installed to 25.0 Feet. Ground Water at 14.66 Feet on 6/10/93.	
68.1	30.0		
63.1	35.0		
58.1	40.0		



REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-13
LOGGED BY	MSP	DATE STARTED	3-23-93
CHECKED BY	MDA	DATE COMPLETED	3-23-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 100.44 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS14.PL3 CLP-27 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
100.4	0.0	Residuum - Firm, Red-Brown, Light-Brown, Fine Sandy SILT.	0.5
95.4	5.0	No Recovery	3.8
90.4	10.0	Partially Weathered Rock Sampled as Pink, White, Slightly Moist, Fine to Medium Sandy SILT, with Rock Fragments.	2.0
85.4	15.0		
80.4	20.0	Boring Terminated at 21.0 Feet. Monitoring Well Installed to 20.5 Feet. Ground Water at 10.15 Feet on 6/10/93.	1.5
75.4	25.0		
70.4	30.0		
65.4	35.0		
60.4	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/5"

50/5"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-14
LOGGED BY	MSP	DATE STARTED	3-22-93
CHECKED BY	MDA	DATE COMPLETED	3-22-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 99.53 Ft.
HEIGHT OF RISER: -0.26 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\2660-MW1.PL3 CLP-12 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	OVA PPM	PENETRATION-BLOWS PER FOOT 0 5 10 15 20 40 60 80 100
99.79	0.0	Well Air Drilled - Cuttings Samples Only Asphalt Orange, Tan, Silty, CLAY			
94.79	5.0				
89.79	10.0				
84.79	15.0				
79.79	20.0	Brown, Tan, Clayey SILT with Fuel Odor			
74.79	25.0	Orange, Tan, Clayey SILT with Fuel Odor			
69.79	30.0				
64.79	35.0	White to Light Tan, Clayey SILT			
59.79	40.0				

REMARKS:
See Key Sheet for Explanation of Symbols and Abbreviations Used Above.

DRILLED BY	Gowan	BORING NUMBER	MW-15
LOGGED BY	MDA	DATE STARTED	12/08/92
CHECKED BY	MDA	DATE COMPLETED	12/15/92
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

T:\DOSAPPS\PLOTLOG\LOGS\2860-MW1.PL3 CLP-12 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION
59.79	40.0	
54.79	45.0	
49.79	50.0	
44.79	55.0	
		Hard Rock
39.79	60.0	
34.79	65.0	
29.79	70.0	
24.79	75.0	
		Light Gray, White Clayey SILT (Talc Power Texture)
19.79	80.0	

WELL DIAGRAM

OVA PPM

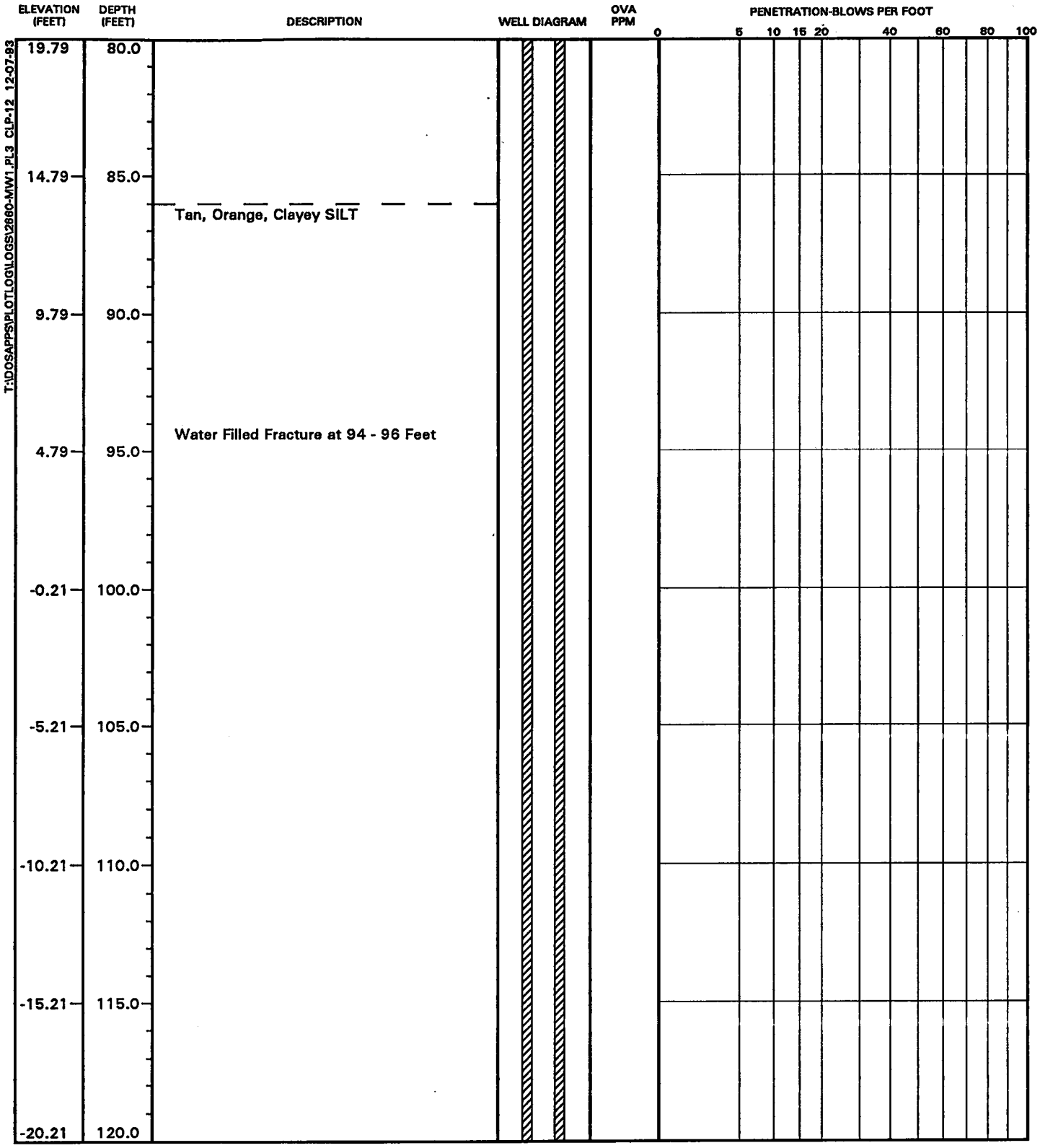
PENETRATION-BLOWS PER FOOT
0 5 10 15 20 40 60 80 100

REMARKS:

DRILLED BY	Gowan	BORING NUMBER	MW-15
LOGGED BY	MDA	DATE STARTED	12/08/92
CHECKED BY	MDA	DATE COMPLETED	12/15/92
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD



REMARKS:

DRILLED BY	Gowan	BORING NUMBER	MW-15
LOGGED BY	MDA	DATE STARTED	12/08/92
CHECKED BY	MDA	DATE COMPLETED	12/15/92
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

T:\DOSAPPS\PLOTLOG\LOGS\2660-MW1.PL3 CLP-12 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	WELL DIAGRAM	OVA PPM	PENETRATION-BLOWS PER FOOT 0 5 10 15 20 40 60 80 100
-20.21	120.0				
-25.21	125.0				
-30.21	130.0	Air Drilling Terminated at 130.0 Feet 8-Inch Surface Casing Set at 40 Feet 6-Inch Intermediate Casing Set at 73 Feet 2-Inch Monitoring Well Installed to 130 Feet Screen = 0.010-Inch - Set from 130 Feet to 125 Feet Sand from 130 Feet to 123 Feet Bentonite from 123 Feet to 64 Feet Grout from 64 Feet to 0.5 Feet Depth to Ground Water Measured at 17.09 Feet on 6/10/93			
-35.21	135.0				
-40.21	140.0				
-45.21	145.0				
-50.21	150.0				
-55.21	155.0				
-60.21	160.0				

REMARKS:

DRILLED BY	Gowan	BORING NUMBER	MW-15
LOGGED BY	MDA	DATE STARTED	12/08/92
CHECKED BY	MDA	DATE COMPLETED	12/15/92
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 100.09 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS16.PL3 CLP-18 12-06-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
100.1	0.0	Residuum - Very Hard, Tan, Brown Fine Sandy SILT.	
95.1	5.0		ND
		Partially Weathered Rock Sampled as Tan, Pink, Fine Sandy SILT.	
90.1	10.0		ND
		Very Stiff, Tan, Pink, Fine Sandy SILT.	
85.1	15.0		ND
		Partially Weathered Rock Sampled as Tan, Pink, Sandy SILT.	
80.1	20.0		ND
75.1	25.0	Boring Terminated at 25.0 Feet. Monitoring Well Installed to 23.5 Feet. Depth to Ground Water Measured at 17.38 Feet on 6/10/93.	
70.1	30.0		
65.1	35.0		
60.1	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/4"

50/5"

50/6"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-16
LOGGED BY	TEV	DATE STARTED	6-7-93
CHECKED BY	MDA	DATE COMPLETED	6-7-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 96.24 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS17.PL3 CLP-22 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
96.2	0.0	Residuum, Very Stiff, Tan, Brown, Fine Sandy SILT.	0.6
91.2	5.0		0.4
86.2	10.0		0.6
81.2	15.0		
		Partially Weathered Rock Sampled as Tan, Fine Sandy SILT.	0.4
76.2	20.0		
		Very Hard, Tan, Fine Sandy SILT.	0.4
71.2	25.0	Boring Terminated at 25.0 Feet. Monitoring Well Installed to 23.5 Feet. Depth to Ground Water Measured at 14.37 Feet on 6/10/3.	
66.2	30.0		
61.2	35.0		
56.2	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/5"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-17
LOGGED BY	TEV	DATE STARTED	6-8-93
CHECKED BY	MDA	DATE COMPLETED	6-8-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 95.36 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS18.PL3 CLP-23 12-06-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
95.4	0.0	Fill - Red Brown Fine Sandy SILT.	0.2
90.4	5.0	Residuum - Hard, Yellowish Tan, Fine Sandy SILT.	
		Partially Weathered Rock Sampled as Yellowish, Tan, Fine Sandy SILT.	1.0
85.4	10.0		
			0.4
80.4	15.0		
		Residuum, Hard, Red, Tan Fine Sandy SILT.	0.4
75.4	20.0		
			0.4
70.4	25.0	Boring Terminated at 25.0 Feet. Monitoring Well Installed to 23.5 Feet. Ground Water at 14.49 Feet on 6/10/93.	
65.4	30.0		
60.4	35.0		
55.4	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/4"

50/4"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-18
LOGGED BY	TEV	DATE STARTED	6-8-93
CHECKED BY	MDA	DATE COMPLETED	6-8-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 93.94 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS18.PL3 CLP-23 12-08-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
93.9	0.0	Asphalt and Crusher Run Gravel.	
		Fill - Firm, Red, Slightly Clayey, Fine Sandy SILT.	0.2
88.9	5.0		
		Fill - Firm Grey, Brown, Slightly Clayey, Silty Fine to Coarse SAND.	0.8
83.9	10.0		
		Residuum - Stiff, Red, Tan, Fine Sandy SILT.	0.4
78.9	15.0		
		Very Hard Black, White, Red, Tan, Fine Sandy SILT.	0.4
73.9	20.0		
		Partially Weathered Rock Sampled as Black, White, Red, Tan, Fine SAND.	0.8
68.9	25.0		
		Residuum - Dense, Black, White, Red, Tan, Fine SAND.	0.6
63.9	30.0	Boring Terminated at 30.0 Feet. Monitering Well Installed to 22.5 Feet. Depth to Ground Water Measured at 13.05 Feet on 6/10/93.	
58.9	35.0		
53.9	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/6"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-19
LOGGED BY	TEV	DATE STARTED	6-9-93
CHECKED BY	MDA	DATE COMPLETED	6-9-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 98.51 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS20.PL3 CLP-23 12-06-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
98.5	0.0	Fill - Very Stiff, Red, Tan, Fine Sandy SILT.	
93.5	5.0		0.2
		Residuum - Stiff, White, Tan, Fine Sandy SILT.	
88.5	10.0		0.6
		Very Stiff, Purple, Tan, White, Fine Sandy SILT.	
83.5	15.0		4.4
		Stiff, Tan, White, Fine Sandy SILT.	
78.5	20.0		5.2
		Hard, Tan, White, Fine Sandy SILT.	
73.5	25.0		1000+
		Partially Weathered Rock Sampled as Tan White, Fine Sandy SILT.	
68.5	30.0		1000+
		Partially Weathered Rock Sampled as Purple Fine Sandy SILT.	
63.5	35.0		700
58.5	40.0	Boring Terminated at 40.0 Feet: Monitoring Well Installed at 38.5 Feet. Depth to Ground Water Measured at 20.72 Feet on 6/10/93.	1000+

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/4" 50/5" 50/4"

REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-20
LOGGED BY	TEV	DATE STARTED	6-9-93
CHECKED BY	MDA	DATE COMPLETED	6-10-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 100.30 Ft.
HEIGHT OF RISER: 2.77 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\2660-MW2.PL3 CLP-16 12-08-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVA (PPM)
97.53	0.0	Topsoil	
		Residuum - Very Hard, Light Tan, SILT with Planar Foliation	ND
92.53	5.0		
		Partially Weathered Rock Sampled as Light Tan, SILT	ND
87.53	10.0		
		Residuum - Very Hard, Light Tan, SILT	ND
82.53	15.0		
		Partially Weathered Rock Sampled as Light Tan, Slightly Micaceous SILT	ND
77.53	20.0		
			ND
72.53	25.0		
		Residuum - Very Stiff, Light, Tan, Slightly Micaceous, Moist, SILT	ND
67.53	30.0		
		Partially Weathered Rock Sampled as Light Tan, Micaceous SILT	ND
62.53	35.0		
57.53	40.0	Boring Terminated at 40.0 Feet Monitoring Well Installed to 40.0 Feet Depth to Ground Water Measured at 30.23 Feet on 10/15/93	ND

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

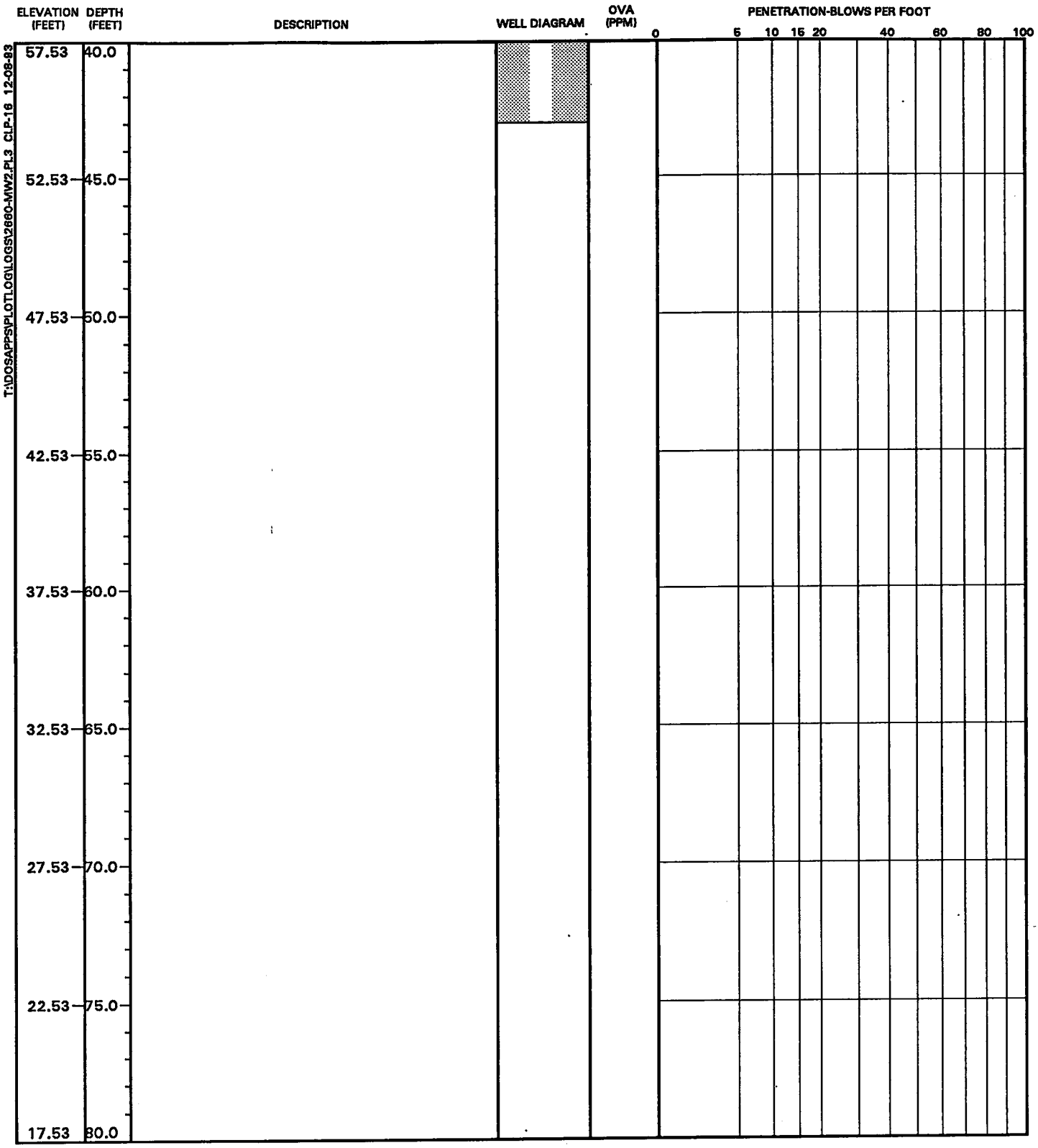
0	5	10	15	20	40	60	80	100
				27				
			14					
					42			
				19				
					27			
					25			
				12				
				13				

REMARKS:
See Key Sheet for Explanation of Symbols and Abbreviations Used Above.

DRILLED BY	Metro	BORING NUMBER	MW-22
LOGGED BY	TEC	DATE STARTED	8/10/93
CHECKED BY	MDA	DATE COMPLETED	8/10/93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD



REMARKS:

DRILLED BY	Metro	BORING NUMBER	MW-22
LOGGED BY	TEC	DATE STARTED	8/10/93
CHECKED BY	MDA	DATE COMPLETED	8/10/93
		JOB NUMBER	499-2-4051-03

Law Engineering

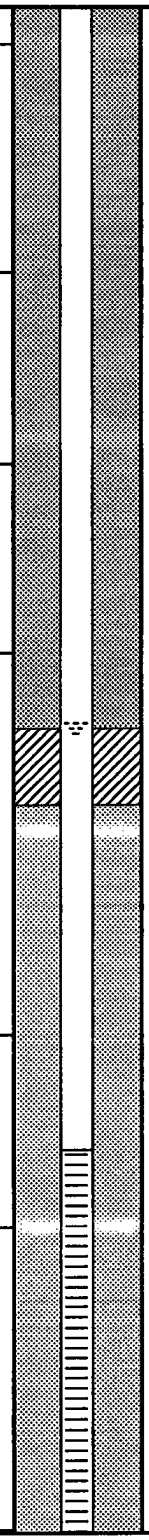
TEST BORING RECORD

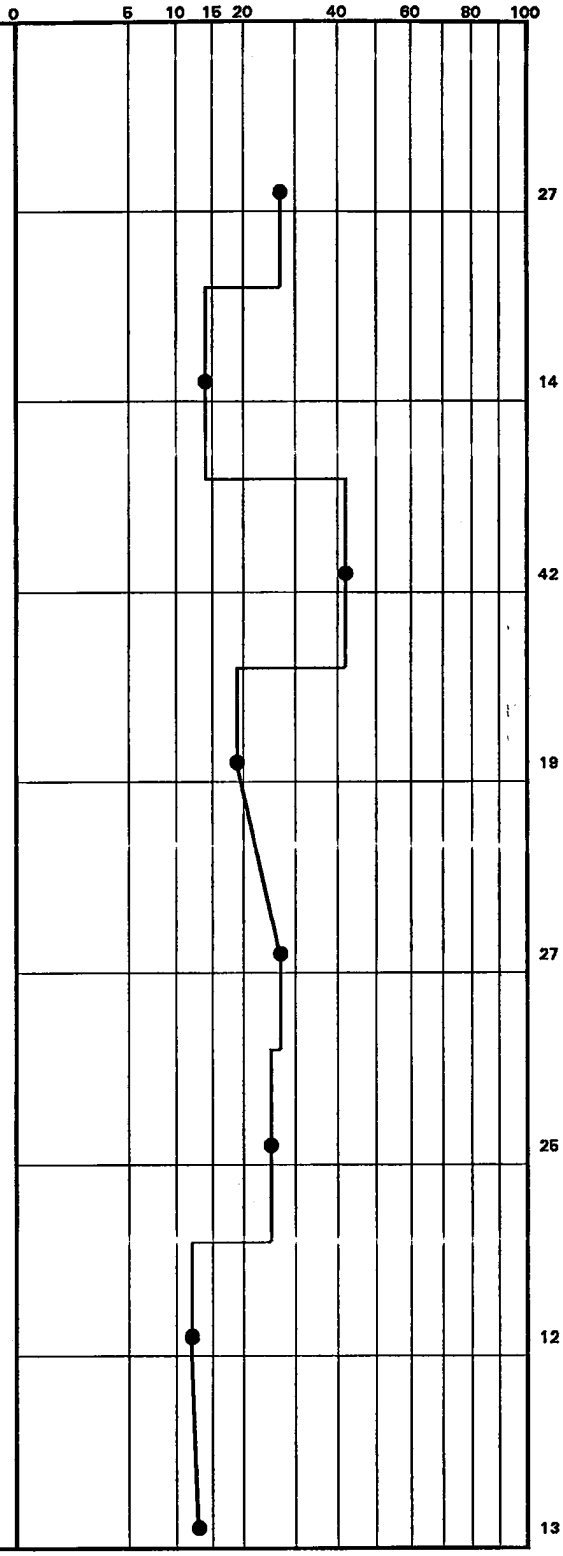
DATUM ELEVATION: 100.30 Ft.
HEIGHT OF RISER: 2.77 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\2660-MW2.PL3 CLP-15 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVA (PPM)	PENETRATION-BLOWS PER FOOT
97.53	0.0	Topsoil		
		Residuum - Very Hard, Light Tan, SILT with Planar Foliation	ND	27
92.53	5.0			
		Partially Weathered Rock Sampled as Light Tan, SILT	ND	14
87.53	10.0			
		Residuum - Very Hard, Light Tan, SILT	ND	42
82.53	15.0			
		Partially Weathered Rock Sampled as Light Tan, Slightly Micaceous SILT	ND	19
77.53	20.0			
72.53	25.0		ND	27
		Residuum - Very Stiff, Light, Tan, Slightly Micaceous, Moist, SILT	ND	25
67.53	30.0			
		Partially Weathered Rock Sampled as Light Tan, Micaceous SILT	ND	12
62.53	35.0			
57.53	40.0	Boring Terminated at 40.0 Feet Monitoring Well Installed to 40.0 Feet Depth to Ground Water Measured at 30.23 Feet on 10/15/93	ND	13

WELL DIAGRAM





REMARKS:
See Key Sheet for Explanation of Symbols and Abbreviations Used Above.

DRILLED BY	Metro	BORING NUMBER	MW-22
LOGGED BY	TEC	DATE STARTED	8/10/93
CHECKED BY	MDA	DATE COMPLETED	8/10/93
		JOB NUMBER	499-2-4051-03

Law Engineering

APPENDIX C

Analytical Test Results

LAW ENVIRONMENTAL, INC.

NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER BLVD. SUITE 315
KENNESAW, GEORGIA 30144
404-426-4309 FAX 426-0243

December 16, 1992

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 449-2-405102
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 12/16/92.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/17/92
Page 1

--- Project Information ---

Lab Number : 62-6100-01
Project No. : 449-2-405102 Cust. No. :
Project Name : CROWN 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-13 130'
Matrix : W
Type : GRAB
Collector : BTS

Sampled Date/Time : 12/15/92 15:00
Received Date/Time : 12/16/92 09:25
Received From/By : BTS/GP
Chain of Custody : 17466
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	430	12/16/92	KH
Benzene	EPA 602	ug/l	1.0	3100	12/16/92	KH
Toluene	EPA 602	ug/l	1.0	5.2	12/16/92	KH
Ethylbenzene	EPA 602	ug/l	1.0	15	12/16/92	KH
Xylene, Total	EPA 602	ug/l	2.0	200	12/16/92	KH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/17/92
Page 1

--- Project Information ---

Lab Number : 62-6100-02
Project No. : 449-2-405102 Cust. No. :
Project Name : CROWN 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 12/15/92 :
Received Date/Time : 12/16/92 09:25
Received From/By : BTS/GP
Chain of Custody : 17466
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	12/16/92	KH
Benzene	EPA 602	ug/l	1.0	ND	12/16/92	KH
Toluene	EPA 602	ug/l	1.0	ND	12/16/92	KH
Ethylbenzene	EPA 602	ug/l	1.0	ND	12/16/92	KH
Xylene, Total	EPA 602	ug/l	2.0	ND	12/16/92	KH

Signed Linda Hawe

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

17466

SAMPLING INFORMATION
NAME OF FACILITY: Crown 576
STREET ADDRESS:
CITY / STATE: McCormick, SC ZIP:

PROJECT NAME: Crown 576
JOB NO.:
SAMPLERS (SIGNATURE): BTShane
SAMPLERS INITIALS (PRINT): BTS
SAMPLING DATE: 12-15-92

CONTAINER TYPE: G = GLASS PL = PLASTIC

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar			FOR LAB USE ONLY
3:00p	✓		W	MW-13 130'	3	3																		62-6100-0[illegible]
				Trip Blank	2	2																		-02

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
BTShane (SIGNATURE)	12/15 5:00p	(SIGNATURE)		(SIGNATURE)	Gerald Pitts (SIGNATURE)	12/16/92 0925

*MATRIX

WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

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REMARKS Analysis: 602 + MTBE

For Law Environmental National Lab Use Only

Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: Gerald Pitts Date: 12/16/92

LAW ENVIRONMENTAL, INC.

NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER BLVD. SUITE 315
KENNESAW, GEORGIA 30144
404-426-4309 FAX 426-0243

December 12, 1992

Law Environmental, Inc.
4333 Wilmont Road Suite 300
Charlotte, NC 28217

Attention: Brian Chew

LE Job Number: 56-2660

Subject: Chemical analysis of samples received on 12/11/92.

Dear Mr. Chew:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/12/92
Page 1

--- Project Information ---

Lab Number : 62-6073-01
Project No. : 56-2660 Cust. No. :
Project Name : CROWN STATION 576

Manager: BRIAN CHEW

--- Sample Information ---

Station ID : MW-13-85'
Matrix : W
Type : GRAB
Collector : MDA

Sampled Date/Time : 12/10/92 13:55
Received Date/Time : 12/11/92 10:20
Received From/By : MDA/ST
Chain of Custody : 17292
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	85	350	12/11/92	RO
Benzene	EPA 602	ug/l	17	3400	12/11/92	RO
Toluene	EPA 602	ug/l	17	22	12/11/92	RO
Ethylbenzene	EPA 602	ug/l	17	ND	12/11/92	RO
Xylene, Total	EPA 602	ug/l	34	400	12/11/92	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/12/92
Page 1

--- Project Information ---

Lab Number : 62-6073-02
Project No. : 56-2660 Cust. No. :
Project Name : CROWN STATION 576

Manager: BRIAN CHEW

--- Sample Information ---

Station ID : MW-13-100'
Matrix : W
Type : GRAB
Collector : MDA

Sampled Date/Time : 12/10/92 16:55
Received Date/Time : 12/11/92 10:20
Received From/By : MDA/ST
Chain of Custody : 17292
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	125	570	12/11/92	RO
Benzene	EPA 602	ug/l	25	4300	12/11/92	RO
Toluene	EPA 602	ug/l	25	ND	12/11/92	RO
Ethylbenzene	EPA 602	ug/l	25	ND	12/11/92	RO
Xylene, Total	EPA 602	ug/l	50	150	12/11/92	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/12/92
Page 1

--- Project Information ---

Lab Number : 62-6073-03
Project No. : 56-2660 Cust. No. :
Project Name : CROWN STATION 576

Manager: BRIAN CHEW

--- Sample Information ---

Station ID : BAILER BLANK
Matrix : W
Type : GRAB
Collector : MDA

Sampled Date/Time : 12/10/92 13:30
Received Date/Time : 12/11/92 10:20
Received From/By : MDA/ST
Chain of Custody : 17292
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	12/11/92	RO
Benzene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Toluene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Ethylbenzene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Xylene, Total	EPA 602	ug/l	2.0	ND	12/11/92	RO

Signed Linda Haun

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 12/12/92
Page 1

--- Project Information ---

Lab Number : 62-6073-04
Project No. : 56-2660 Cust. No. :
Project Name : CROWN STATION 576

Manager: BRIAN CHEW

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 12/10/92 :
Received Date/Time : 12/11/92 10:20
Received From/By : MDA/ST
Chain of Custody : 17292
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	12/11/92	RO
Benzene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Toluene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Ethylbenzene	EPA 602	ug/l	1.0	ND	12/11/92	RO
Xylene, Total	EPA 602	ug/l	2.0	ND	12/11/92	RO

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

17292

SAMPLING INFORMATION

NAME OF FACILITY: Crown Service Station 576
STREET ADDRESS: 201 N. Mine St - Little Crickett Gas Station
CITY / STATE: McCormick, S.C. ZIP: 29835

PROJECT NAME: Crown Station 576
JOB NO.: 56-2660
SAMPLERS (SIGNATURE): Michael Cannon
SAMPLERS INITIALS (PRINT): MDA
SAMPLING DATE: 12/10/92

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	FOR LAB USE ONLY
1355	X		W	MW-13 - 85'	3	02603[illegible]
1655	X		W	MW-13 - 100'	3	-02
1330	X		W	Bailer Blank	3	-03
	X		W	TRIP BLANK	2	-04

CONTAINER TYPE: G = GLASS PL = PLASTIC
40 ml G VOA Vial (HCl) | 40 ml G VOA Vial | 1 L G Amber Bottle | 1 L G Amber Bottle (H_2SO_4) | 1 L PL Bottle | 1 L PL Bottle (HNO_3) | 1 L PL Bottle (H_2SO_4) | 1 L PL Bottle (Ascorbic Acid + NaOH) | 250 ml PL Bottle (Zn Acetate + NaOH) | Teflon Bottle | 32 oz. G Jar | 8 oz. G Jar | 4 oz. G Jar | 2 oz. G SEPTA Jar | 4 oz. PL Jar

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
Michael Cannon	12/10/92 1900				[signature]	12/11/92 10:20

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS: Analyse : BTEX, MTBE - EPA METHOD 602

For Law Environmental/National Lab Use Only
Are Custody Seals Present? Yes ☐ No ☒ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☒ Inspected By: Date:

LAW ENVIRONMENTAL, INC.

112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144-5599
404-421-3400

March 30, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Mark Preddy

LE Job Number: 499-2-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 03/26/93.

Dear Mr. Preddy:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-7 (23.5-25.0) Sampled Date/Time : 03/17/93 16:30
Matrix : SO Received Date/Time : 03/25/93 16:00
Type : GRAB Received From/By : JA/LD
Collector : JA Chain of Custody : 16013
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	8.7	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-02
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-11 (8.5-10.0) Sampled Date/Time : 03/18/93 11:45
Matrix : SO Received Date/Time : 03/25/93 16:00
Type : GRAB Received From/By : JA/LD
Collector : JA Chain of Custody : 16013
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	20	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-03
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-14 (13.5-15) Sampled Date/Time : 03/22/93 11:30
Matrix : SO Received Date/Time : 03/25/93 16:00
Type : GRAB Received From/By : JA/LD
Collector : JA Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	5.7	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-04
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-8 (3.5-5)
Matrix : SO
Type : GRAB
Collector : JA

Sampled Date/Time : 03/22/93 13:00
Received Date/Time : 03/25/93 16:00
Received From/By : JA/LD
Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	15	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-05
Project No. : 499-2-4051-03
Project Name : CROWN MCCORMICK

Cust. No. :

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-9 (3.5-5)
Matrix : SO
Type : GRAB
Collector : JA

Sampled Date/Time : 03/22/93 15:00
Received Date/Time : 03/25/93 16:00
Received From/By : JA/LD
Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	20	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-06
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-13 (8.5-10) Sampled Date/Time : 03/23/93 11:00
Matrix : SO Received Date/Time : 03/25/93 16:00
Type : GRAB Received From/By : JA/LD
Collector : JA Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	7.9	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-07
Project No. : 499-2-4051-03
Project Name : CROWN MCCORMICK

Cust. No. :

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-12 (18.5-20)
Matrix : SO
Type : GRAB
Collector : JA

Sampled Date/Time : 03/23/93 14:30
Received Date/Time : 03/25/93 16:00
Received From/By : JA/LD
Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	15	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-08
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : MW-10 (8.5-10) Sampled Date/Time : 03/23/93 16:30
Matrix : SO Received Date/Time : 03/25/93 16:00
Type : GRAB Received From/By : JA/LD
Collector : JA Chain of Custody : 16067
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	16	03/30/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	03/29/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/31/93
Page 1

--- Project Information ---

Lab Number : 63-6648-09
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: MARK PREDDY

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 03/23/93 :
Received Date/Time : 03/25/93 16:00
Received From/By : JA/LD
Chain of Custody : 16067
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/l	5	ND	03/30/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

16013

SAMPLING INFORMATION
NAME OF FACILITY:
STREET ADDRESS:
CITY / STATE: ZIP:

PROJECT NAME: CROWN McCORMICK
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): [signature]
SAMPLERS INITIALS (PRINT): MSP/JLA
SAMPLING DATE: 3-17-93 / 3-18-93

CONTAINER TYPE: G = GLASS PL = PLASTIC

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar			FOR LAB USE ONLY
1630	✓		SO	MW-7 (23.5-25.0)	1														1					63-6648-0[illegible]
1145	✓		SO	MW-11 (8.5-10.0)	1														1					-02

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
[signature] (SIGNATURE)	3/19 1700	(SIGNATURE)		(SIGNATURE)	[signature] (SIGNATURE)	3/25/93 16:00

*MATRIX

WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

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REMARKS

For Law Environmental National Lab Use Only
Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: [signature] Date: 3/25/93

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

16067

SAMPLING INFORMATION

NAME OF FACILITY: Little Cricket
STREET ADDRESS: Highway 28
CITY / STATE: McCormick, SC ZIP:

PROJECT NAME: Crown SC-576, McCormick, SC
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): Mark D. Priddy
SAMPLERS INITIALS (PRINT): MDP
SAMPLING DATE: 3/22/93 3/23/93

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar	FOR LAB USE ONLY
3/22/93 1130	X		SO	MW-14 (13.5-15)	1													1				23648-01
3/22/93 1300	X		SO	MW-8 (3.5-5)	1													1				-04
3/22/93 1500	X		SO	MW-9 (3.5-5)	1													1				-05
3/23/93 1400	X		SO	MW-13 (8.5-10)	1													1				-06
3/23/93 1430	X		SO	MW-12 (18.5-20)	1													1				-07
3/23/93 1630	X		SO	MW-10 (8.5-10)	1													1				-08
				Trip Blank	2		2															-09

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
Mark D. Priddy	3/23/93 1930				Linda Davenport	3/25/93 16:00

*MATRIX
WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

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REMARKS normal TAT

For Law Environmental National Lab Use Only
Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: Linda Davenport Date: 3/25/93

LAW ENVIRONMENTAL, INC.

112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144-5599
404-421-3400

March 12, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 499-2-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 03/05/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 03/15/93
Page 1

--- Project Information ---

Lab Number : 63-6562-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN MCCORMICK

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : B-1 THRU B-3 Sampled Date/Time : 03/01/93 15:30
Matrix : SO Received Date/Time : 03/05/93 11:10
Type : COMP Received From/By : JH/ST
Collector : JH Chain of Custody : 985
Number of Containers : 3

Remarks : *THE CHROMATOGRAM IS IN THE RANGE OF DIESEL/WEATHERED GASOLINE.

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	22	03/15/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	130*	03/10/93	RO

Signed Linda Hamm

0985

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY RECORD

SAMPLING INFORMATION
NAME OF FACILITY: Crown, Station
STREET ADDRESS: N. Mine St.
CITY / STATE: McCormick, SC ZIP:

PROJECT NAME: Crown McCormick
JOB NO.: 449 2405103
SAMPLERS (SIGNATURE): Jeffrey M. Hilliard
SAMPLING DATE: 3-1-93

TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml G VOA HCl	1 L G - AMBER	8 oz. G, W/M	4 oz. G, W/M	1 L G (H_2SO_4)	500 ml - AMBER	1 L, PL (HNO_3)	1 L, PL (H_2SO_4)	1L, PL (NaOH+Ascorbic Acid)	1 L, PL (Zn Acetate + NaOH)	1 L, PL	4 oz. PL W/M	250 ml PL	1 L, TEFLON	LENL LAB NO.
3:30pm	✓		SO	B-1	1		1													6362-01
3:30pm	✓		SO	B-2	1		1													-01
3:30pm	✓		SO	B-3	1		1													-01

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
Jeffrey M. Hilliard	3/1/93 3:30pm					3/3/93 10:10

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY.
PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS
Analysis: TPH vol. 5FB
Please Composite samples B-1, B-2 and B-3 to form 1 sample for above analysis

***SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

April 8, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 499-2-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 04/03/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
112 TOWNPARK DRIVE
KENNESAW, GA 30144

404-421-3300
FAX 404-421-3301
ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-15
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 11:45
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	220	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	1.0	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	2.4	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-02
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-7
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 13:30
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	11	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	170	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	38	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	130	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	220	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-03
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-9
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 14:00
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-04
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-10
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 14:30
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	1.7	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	3.1	04/08/93	OR

Signed Linda Haun

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-05
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-11
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 15:00
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	7.9	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	5.9	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	5.6	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	33	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-06
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-12
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 15:30
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-07
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-8
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 15:45
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Harris

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-08
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-13
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 16:30
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	1000	2300	04/08/93	OR
Benzene	EPA 602	ug/l	200	20000	04/08/93	OR
Toluene	EPA 602	ug/l	200	35000	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	200	3000	04/08/93	OR
Xylene, Total	EPA 602	ug/l	400	15000	04/08/93	OR

Signed Linda Haines

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-09
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-14
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 17:15
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	50	ND	04/08/93	OR
Benzene	EPA 602	ug/l	10	620	04/08/93	OR
Toluene	EPA 602	ug/l	10	3600	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	10	500	04/08/93	OR
Xylene, Total	EPA 602	ug/l	20	2900	04/08/93	OR

Signed Linda Haun

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-10
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 04/01/93 :
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/09/93
Page 1

--- Project Information ---

Lab Number : 63-6689-11
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN SC-576, MCCORMICK, SC

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : BAILER RINSATE
Matrix : W
Type : GRAB
Collector : MSP

Sampled Date/Time : 04/01/93 17:20
Received Date/Time : 04/03/93 09:22
Received From/By : MSP/LD
Chain of Custody : 16009
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/08/93	OR
Benzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Toluene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/08/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/08/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

16009

SAMPLING INFORMATION

NAME OF FACILITY: Crown SC-576
STREET ADDRESS: Hwy 10/28
CITY / STATE: McCormick, SC ZIP:

PROJECT NAME: Crown SC-576, McCormick, SC
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): N S Reddy
SAMPLERS INITIALS (PRINT): MSP
SAMPLING DATE: 4/1/93

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE G = GLASS PL = PLASTIC: 40 ml G VOA Vial	40 ml G VOA Vial (HCl)	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar	FOR LAB USE ONLY
1145	X		W	MW-15	3	3																68689-01
1330	X		W	MW-7	3	3																-02
1400	X		W	MW-9	3	3																-03
1430	X		W	MW-10	3	3																-04
1500	X		W	MW-11	3	3																-05
1530	X		W	MW-12	3	3																-06
1545	X		W	MW-8	3	3																-07
1630	X		W	MW-13	3	3																-08
1715	X		W	MW-14	3	3																-09
				Trip Blank	2	2																-10
1720	X		W	Bailer Rinsate	3	3																-11

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
N S Reddy	4/2/93 0900				Linda Davenport	4/3/93 9:27

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS BTEX plus MTBE. Normal TAT. Results to Brian Shane, Law Engineering, Columbia, S.C. Thank You.

For Law Environmental National Lab Use Only
Are Custody Seals Present? Yes ☑ No ☐ Are Custody Seals Intact? Yes ☑ No ☐ N/A ☐ Inspected By: Linda Davenport Date: 4/3/93

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

June 17, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 499-2-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 06/12/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
112 TOWNPARK DRIVE
KENNESAW, GA 30144-5599

404-421-3400
FAX 404-421-3486
ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-16 (25')
Matrix : SO
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/07/93 17:10
Received Date/Time : 06/12/93 09:30
Received From/By : /GP
Chain of Custody : 20151
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	11	06/21/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	06/17/93	RO

Signed Linda Haun

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-02
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-17 (25')
Matrix : SO
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/08/93 10:00
Received Date/Time : 06/12/93 09:30
Received From/By : /GP
Chain of Custody : 20151
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	16	06/21/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	06/18/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-03
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-18 (25')
Matrix : SO
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/08/93 12:30
Received Date/Time : 06/12/93 09:30
Received From/By : /GP
Chain of Custody : 20151
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	15	06/21/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	06/18/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-04
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-19 (25')
Matrix : SO
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/09/93 09:30
Received Date/Time : 06/12/93 09:30
Received From/By : /GP
Chain of Custody : 20151
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	13	06/21/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	06/18/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-05
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-20 (40')
Matrix : SO
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 09:30
Received Date/Time : 06/12/93 09:30
Received From/By : /GP
Chain of Custody : 20151
Number of Containers : 1

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	5.9	06/21/93	RO
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	06/21/93	RO

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-06
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-7
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 15:00
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	17	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	9.6	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-07
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-8 Sampled Date/Time : 06/10/93 15:10
Matrix : W Received Date/Time : 06/12/93 09:30
Type : GRAB Received From/By : TEV/GP
Collector : TEV Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-08
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-9
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 15:20
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-09
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-10
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 15:30
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-10
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-11 Sampled Date/Time : 06/10/93 15:40
Matrix : W Received Date/Time : 06/12/93 09:30
Type : GRAB Received From/By : TEV/GP
Collector : TEV Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	3.4	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-11
Project No. : 499-2-4051-03
Project Name : CROWN #576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-12
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 15:50
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-12
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-14 Sampled Date/Time : 06/10/93 16:00
Matrix : W Received Date/Time : 06/12/93 09:30
Type : GRAB Received From/By : TEV/GP
Collector : TEV Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	43	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	35	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	25	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	270	06/17/93	OR

Signed

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-13
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-15
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 16:10
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	59	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	26	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-14
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-16
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 16:20
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	14	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
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--- Project Information ---

Lab Number : 63-6966-15
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-17
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 16:30
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-16
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-18 Sampled Date/Time : 06/10/93 16:40
Matrix : W Received Date/Time : 06/12/93 09:30
Type : GRAB Received From/By : TEV/GP
Collector : TEV Chain of Custody : 20518
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
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--- Project Information ---

Lab Number : 63-6966-17
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-19
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 17:30
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20519
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/17/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/17/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/17/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-18
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-20
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 17:50
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20519
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	1000	2800	06/17/93	OR
Benzene	EPA 602	ug/l	200	16000	06/17/93	OR
Toluene	EPA 602	ug/l	200	31000	06/17/93	OR
Ethylbenzene	EPA 602	ug/l	200	3100	06/17/93	OR
Xylene, Total	EPA 602	ug/l	400	15000	06/17/93	OR

Signed Sandra Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-19
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : BAILER RINSE
Matrix : W
Type : GRAB
Collector : TEV

Sampled Date/Time : 06/10/93 18:00
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20519
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/18/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/18/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 06/19/93
Page 1

--- Project Information ---

Lab Number : 63-6966-20
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN #576

Manager: BRYAN SHANE

--- Sample Information ---

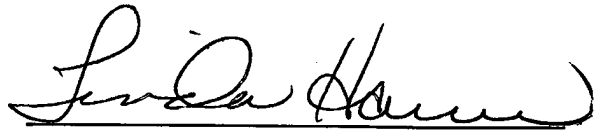
Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 06/10/93 :
Received Date/Time : 06/12/93 09:30
Received From/By : TEV/GP
Chain of Custody : 20519
Number of Containers : 6

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	06/18/93	OR
Benzene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Toluene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	06/18/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	06/18/93	OR

Signed 

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

20151

SAMPLING INFORMATION

NAME OF FACILITY: CROWN #576
STREET ADDRESS: 201 S. MINE
CITY / STATE: McCORMICK SC ZIP: 29835

PROJECT NAME: CROWN # 576
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): Thomas E Vollema
SAMPLERS INITIALS (PRINT): TEV
SAMPLING DATE: * AS NOTED BELOW 6-7-93 TO 6-9-93

CONTAINER TYPE: G = GLASS PL = PLASTIC

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar	FOR LAB USE ONLY
1710	✓		SO	MW-16 (25') ON *6-7-93	1														1			63-6966
1000	✓		SO	MW-17 (25') ON *6-8-93	1														1			-02
1230	✓		SO	MW-18 (25') ON *6-8-93	1														1			-03
0930	✓		SO	MW-19 (25') ON *6-9-93	1														1			-04
0930	✓		SO	MW-20 (40') ON *6-10-93	1														1			-05

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
(SIGNATURE)		(SIGNATURE)		(SIGNATURE)	Gerald Pitts (SIGNATURE)	6/12/93 0930

*MATRIX

WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

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REMARKS

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Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: Gerald Pitts Date: 6/12/93

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

20518

SAMPLING INFORMATION
NAME OF FACILITY: Crown #576
STREET ADDRESS: Mine St
CITY / STATE: McCormick SC ZIP:

PROJECT NAME: Crown #576
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE):
SAMPLERS INITIALS (PRINT): TEV
SAMPLING DATE: 6-10-93

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE G = GLASS PL = PLASTIC: 40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar	FOR LAB USE ONLY
1500	✓		W	MW-7	3	3																63-6960-06
1510	✓		W	MW-8	3	3																-07
1520	✓		W	MW-9	3	3																-08
1530	✓		W	MW-10	3	3																-09
1540	✓		W	MW-11	3	3																-10
1550	✓		W	MW-12	3	3																-11
1600	✓		W	MW-14	3	3																-12
1610	✓		W	MW-15	3	3																-13
1620	✓		W	MW-16	3	3																-14
1630	✓		W	MW-17	3	3																-15
1640	✓		W	MW-18	3	3																-16

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
	6-11-93 1700				Donald Pitts	6/12/93 0930

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

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REMARKS

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Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: Donald Pitts Date: 6/12/93

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

20519

SAMPLING INFORMATION
NAME OF FACILITY: CROWN #576
STREET ADDRESS: MINE ST
CITY / STATE: McCORMICK SC ZIP:

PROJECT NAME	JOB NO.
CROWN #576	499-2-4051-03
SAMPLERS (SIGNATURE)	SAMPLERS INITIALS (PRINT)
	TCV

SAMPLING DATE: 6-10-93

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE G = GLASS PL = PLASTIC: 40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	1 L G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	4 oz. PL Jar	FOR LAB USE ONLY
1730	✓		W	MW-19	3	3																6310400-17
1750	✓		W	MW-20	3	3																-18
1800	✓		W	BAILER RINSE	3	3																-19
				TRIP BLANK	6	6																-20

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
	6-11-93 17 00					6/12/93 0930

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

For Law Environmental National Lab Use Only
Are Custody Seals Present? Yes ☐ No ☑ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☑ Inspected By: Date: 6/12/93

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

August 18, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 449-3-4051-02
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 08/12/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER, SUITE 315
KENNESAW, GA 30144

404-426-4309
FAX 404-426-0243
ONE OF THE LAW COMPANIES

SAMPLE CONTROL SOIL RETURN

PROJECT MANAGER: BRIAN SHANE
PROJECT NAME: LIL CRICHET(FORMER CROWN# 576)
DATE RECEIVED: 08/12/93

JOB NUMBER: 449-2-4051-02
LAB NUMBER: 63-7248

SAMPLE NUMBER	SITE ID	MATRIX	# OF CONTAINERS
63-7248-01	MW-21 (28.5 -30.0)	SO	2
63-7248-02	MW-22 (18.5 -20.0)	SO	2

The lab is holding the above samples. If these samples are not disposed of by 9/9/93, you will be charged a storage fee of $50 per box, per month.
To dispose of these samples please complete Part A or Part B and return.

SAMPLE CONTROL
LAW ENVIRONMENTAL NATIONAL LABS
112 TOWNPARK DR.
KENNESAW, GA 30144
404-421-7005
FAX 404-421-3301

Part A - Return Samples

Return Samples to:

Attn: _____

Address: _____

_____

_____

Part B - Dispose of Samples

Can samples be disposed of as a non-hazardous waste?
Yes_____ No_____

Do analytical results confirm that these samples are non-hazardous?
Yes_____ No_____

Comments: Contaminated and hazardous waste samples can be disposed of by LENL. A charge of $15.00 per sample (minimum $100.00 per project) disposal fee will be assessed to the project.

Approved_____ Date_____
Department or Project Manager

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 08/18/93
Page 1

--- Project Information ---

Lab Number : 63-7248-01
Project No. : 449-2-4051-02 Cust. No. :
Project Name : LIL CRICHET(FORMER CROWN# 576)

Manager: BRIAN SHANE

--- Sample Information ---

Station ID : MW-21 (28.5 -30.0)
Matrix : SO
Type : GRAB
Collector : WA

Sampled Date/Time : 08/10/93 12:45
Received Date/Time : 08/12/93 13:20
Received From/By : NM/JA
Chain of Custody : 16047
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	11	08/13/93	TH
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 8020	ug/kg	8.0	ND	08/16/93	OR
Benzene	EPA 8020	ug/kg	1.6	1.7	08/16/93	OR
Toluene	EPA 8020	ug/kg	1.6	5.2	08/16/93	OR
Ethylbenzene	EPA 8020	ug/kg	1.6	ND	08/16/93	OR
Xylene, Total	EPA 8020	ug/kg	3.2	ND	08/16/93	OR
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	08/16/93	TH

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 08/18/93
Page 1

--- Project Information ---

Lab Number : 63-7248-02
Project No. : 449-2-4051-02 Cust. No. :
Project Name : LIL CRICHET(FORMER CROWN# 576)

Manager: BRIAN SHANE

--- Sample Information ---

Station ID : MW-22 (18.5 -20.0)
Matrix : SO
Type : GRAB
Collector : WA

Sampled Date/Time : 08/10/93 16:30
Received Date/Time : 08/12/93 13:20
Received From/By : NM/JA
Chain of Custody : 16047
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
Moisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	34	08/13/93	TH
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 8020	ug/kg	11	ND	08/16/93	OR
Benzene	EPA 8020	ug/kg	2.1	ND	08/16/93	OR
Toluene	EPA 8020	ug/kg	2.1	ND	08/16/93	OR
Ethylbenzene	EPA 8020	ug/kg	2.1	ND	08/16/93	OR
Xylene, Total	EPA 8020	ug/kg	4.2	ND	08/16/93	OR
--- SERIES 16000						
TPH-Volatile	SFB/5030	mg/kg	5	ND	08/13/93	TH

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

16047

SAMPLING INFORMATION

NAME OF FACILITY: Lil Cricket
STREET ADDRESS:
CITY / STATE: McCormick SC ZIP:

PROJECT NAME: Lil Cricket (Former Crown #576)
JOB NO.: 449-2-4051-02 TASK 02
SAMPLERS (SIGNATURE):
SAMPLERS INITIALS (PRINT): AWH
SAMPLING DATE: 8-10-93

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	1 L G Amber Bottle	1 L PL Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	250 ml PL Bottle	4 oz. G Jar	FOR LAB USE ONLY
12:45	X		SO	MW-21 (28.5-30.0)	2								2	63-7248-1
16:30	X		SO	MW-22 (18.5-20.0)	2								2	-02

CONTAINER TYPE: G = GLASS PL = PLASTIC

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
	8-10 18:00		8-10 18:00	8-11 17:00		8/12/93 1320

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

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REMARKS Invoice + Results to Brian Shane - Columbia Job # 449-2-4051-02

For Law Environmental National Lab Use Only

Are Custody Seals Present? Yes ☐ No ☐ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☐ Inspected By: Date:

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

August 23, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 499-2-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 08/18/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER, SUITE 315
KENNESAW, GA 30144

404-426-4309
FAX 404-426-0243
ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 08/23/93
Page 1

--- Project Information ---

Lab Number : 63-7270-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : CROWN McCORMICK

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-22 Sampled Date/Time : 08/17/93 14:30
Matrix : W Received Date/Time : 08/18/93 09:15
Type : GRAB Received From/By : TEV/SO
Collector : TEV Chain of Custody : 21537
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	08/20/93	OR
Benzene	EPA 602	ug/l	1.0	ND	08/20/93	OR
Toluene	EPA 602	ug/l	1.0	ND	08/20/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/20/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/20/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

№ 21537

SAMPLING INFORMATION
NAME OF FACILITY: CROWN
STREET ADDRESS:
CITY / STATE: McCORMICK ZIP:

PROJECT NAME: CROWN McCORMICK
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): [signature]
SAMPLERS INITIALS (PRINT): TEV
SAMPLING DATE: 8/17/93

CONTAINER TYPE: G = GLASS PL = PLASTIC

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	500 ml G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Amber Bottle	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar			FOR LAB USE ONLY
1930	✓		W	MW-22	3	3																		63-[illegible]270-01

RELINQUISHED BY:	DATE / TIME	RECEIVED BY:	DATE / TIME	RELINQUISHED BY:	RECEIVED BY LABORATORY:	DATE / TIME
[signature] (SIGNATURE)	8/17/93 17:00	(SIGNATURE)		(SIGNATURE)	[signature] (SIGNATURE)	8/18/93 9:15

*MATRIX

WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

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REMARKS

For Law Environmental National Lab Use Only

Are Custody Seals Present? Yes ☐ No ☐ Are Custody Seals Intact? Yes ☐ No ☐ N/A ☐ Inspected By: Date:

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
300 CHASTAIN CENTER BLVD.
SUITE 315
KENNESAW, GEORGIA 30144
(404) 426-4309

LAW ENVIRONMENTAL NATIONAL LABORATORIES

KENNESAW REQUEST FOR ANALYSIS HYDROCARBON LAB

PROJECT NAME: CROWN McCORMICK COC#: 21537

PROJECT #: 499-2 4054-03 TASK #: _____ PROJECT MGR: Bryan Shane

HYDROCARBON (CIRCLE ANALYSES REQUESTED)

TURNAROUND TIME: STANDARD (1 WEEK) ✓ RUSH _____ (INCURS RUSH FEE)
days

SAMPLE I.D.: MW-22

	Water	Water/Soil
BTEX	602	8020
BTEX + MTBE	602	8020
IPE	602	8020
Petroleum Hydrocarbons, IR - EPA 418.1		
Oil & Grease	9070	9071 (Soil Only)
Polynuclear Aromatic Hydrocarbons (PAH)	610	8100

Petroleum Hydrocarbons, Volatile - CAL-DHS
Petroleum Hydrocarbons, Semi-Volatile - CAL-DHS

Petroleum Hydrocarbons, Volatile - EPA 5030/8015M
Petroleum Hydrocarbons, Volatile - 5030/SF BAY
Petroleum Hydrocarbons, Semi-Volatile - 3550/SF BAY

Petroleum Hydrocarbons, GRO - TENN/5030
Petroleum Hydrocarbons, DRO - TENN

Petroleum Hydrocarbons, Volatile - IOWA/5030
Petroleum Hydrocarbons, Semi-Volatile - IOWA

Petroleum Hydrocarbons, Gas/Diesel - EPA 8015M/VA

Petroleum Hydrocarbons, IR - WTPH-418.1M/WA
Petroleum Hydrocarbons, Volatile - WTPH-G/WA
Petroleum Hydrocarbons, Semi-Volatile - WTPH-D/WA

FORM COMPLETED BY: _____ DATE: 8/17/93

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

September 14, 1993

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Bryan Shane

LE Job Number: 499-3-4051-03
S.C. Certification Number: 98004

Subject: Chemical Analysis of samples received on 09/09/93.

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER, SUITE 315
KENNESAW, GA 30144

404-426-4309
FAX 404-426-0243
ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/15/93
Page 1

--- Project Information ---

Lab Number : 63-7388-01
Project No. : 499-3-4051-03
Project Name : CROWN McCORMICK

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-21
Matrix : W
Type : GRAB
Collector : TV

Sampled Date/Time : 09/08/93 13:00
Received Date/Time : 09/09/93 09:00
Received From/By : TV/LD
Chain of Custody : 2738
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	09/11/93	OR
Benzene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Toluene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	09/11/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/15/93
Page 1

--- Project Information ---

Lab Number : 63-7388-02
Project No. : 499-3-4051-03 Cust. No. :
Project Name : CROWN McCORMICK

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 09/09/93 :
Received Date/Time : 09/09/93 09:00
Received From/By : TV/LD
Chain of Custody : 2738
Number of Containers : 2

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	09/11/93	OR
Benzene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Toluene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	09/11/93	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	09/11/93	OR

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY RECORD

2738

SAMPLING INFORMATION
NPDES NUMBER

NAME OF FACILITY: CROWN #576
STREET ADDRESS: McCORMICK SC

PROJECT NAME	JOB NO.
CROWN McCORMICK	499-3-4051-03

SAMPLERS (SIGNATURE)

SAMPLING DATE: 9-8-93

TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE: 40 ml G VOA HCl	1 L G - AMBER	8 oz. G, W/M	2 oz. G, W/M	1 L G (H_2SO_4)	500 ml - AMBER	1 L, PL (HNO_3)	1 L, PL (H_2SO_4)	1L, PL (NaOH+Ascorbic Acid)	1 L, PL (Zn Acetate + NaOH)	1 L, PL	4 oz. PL W/M	250 ml PL	1 L, TEFLON	LENL LAB NO.
1300	✓		W	MW-21	3	3														93-73[redacted]
			W	TRIP BLANK	2	2														-02

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
	9-8-93 17 00				Linda Davenport	9/9/93 9:00

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REMARKS

***SOURCE CODES**

RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

October 24, 1994

Mr. Aubrey Stewart
South Carolina Department of Health
and Environmental Control
Ground-Water Protection Division
2600 Bull Street
Columbia, South Carolina 29201

Subject: **Quarterly Ground-Water Sampling Results**
Former Crown Station No. SC-576
200 North Mine Street (SC Hwy 28)
McCormick, South Carolina
GWPD Site I.D. #6443, PCAS #7463
Law Engineering Project No. 499-2-4051-03

Dear Mr. Stewart:

Law Engineering (LAW) is pleased to submit the results of the recent ground-water sampling and analysis event for the subject facility. As authorized by your approval of our Proposal No. 6008M4 Law Engineering has completed the following tasks at the subject site:

- Obtained depth to water and product measurements from monitoring wells MW-7 through MW-17, and MW-19 through MW-22 on August 16, 1994.

- Purged and sampled monitoring wells MW-7 through MW-17, and MW-19 through MW-22(with the exception of those which were dry or contained free product), on August 18, 1994.

- Shipped the ground-water samples to Law Environmental National Laboratories (LENL) in Kennesaw, Georgia for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE). Laboratory reports and chain-of-custody records are attached in the Appendix.

Table 1 presents ground-water elevation data collected by LAW for the current and the three previous water level measurements. Table 2 presents a summary of the analytical results from August 18, 1994 and the three previous sampling events. Figure 1 presents the ground-water contours determined from the August 16 water level measurements. Figure 2 presents a total BTEX isopleth map for the August 18, 1994 sampling event.

LAW ENGINEERING, INC.
720 GRACERN ROAD, SUITE 132 • COLUMBIA, SC 29210
P.O. BOX 21879 • COLUMBIA, SC 29221-1879
(803) 798-1200 • FAX (803) 750-1303
ONE OF THE LAW COMPANIES

Law Engineering appreciates the opportunity to continue to provide our environmental services on this project. Please feel free to contact us at (803) 798-1200 if you have any questions or comments concerning this report.

Sincerely,

LAW ENGINEERING, INC.

Shaun C. Rankin
Staff Scientist

Bryan T. Shane, P.G.
Senior Geologist
Registered SC #1102

Brian E. Chew, Sr., P.G.
Principal Hydrogeologist
Registered SC #184

Attachments

CC: Matt Gilmore, Crown Central Petroleum

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*	
MW-1	06/17/93	100.00	15.81	20.03	4.22	83.09	*
	10/15/93		26.26	>30.0	>3.74	<70.00	*
	04/18/94		20.67	23.83	3.16	78.51	*
	08/16/94		NI	NI	NI	NI	
MW-2	06/17/93	98.76	15.10	15.15	0.05	83.65	*
	10/15/93		-	25.41	-	73.35	
	04/18/94		19.19	23.12	3.93	78.55	*
	08/16/94		NI	NI	NI	NI	
MW-4	06/17/93	101.00	16.55	16.88	0.33	84.36	*
	10/15/93		-	dry	-	<75.30	
	04/18/94		20.77	23.54	2.77	79.51	*
	08/16/94		NI	NI	NI	NI	
MW-5	06/17/93	101.63	18.07	18.29	0.22	83.50	*
	10/15/93		27.51	>32.9	>5.39	<72.72	
	04/18/94		22.45	24.68	2.23	78.60	*
	08/16/94		NI	NI	NI	NI	
MW-6	06/17/93	99.89	-	17.50	-	82.39	
	10/15/93		-	26.85	-	73.04	
	04/18/94		-	21.45	-	78.44	
	08/16/94		NI	NI	NI	NI	
MW-7	06/17/93	100.40	-	17.03	-	83.37	
	10/15/93		-	dry	-	<80.76	
	04/18/94		-	dry	-	<80.76	
	08/16/94		-	dry	-	<80.76	
MW-8	06/17/93	103.31	-	19.10	-	84.21	
	10/15/93		-	dry	-	<82.95	
	04/18/94		-	dry	-	<82.95	
	08/16/94		-	dry	-	<82.95	
MW-9	06/17/93	98.61	-	15.86	-	82.75	
	10/15/93		-	dry	-	<80.29	
	04/18/94		-	dry	-	<80.29	
	08/16/94		-	dry	-	<80.29	

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*	
MW-10	06/17/93	92.79	-	14.43	-	78.36	
	10/15/93		-	dry	-	<74.54	
	04/18/94		-	16.11	-	76.68	
	08/16/94		-	16.77	-	76.02	
MW-11	06/17/93	85.22	-	9.41	-	75.81	
	10/15/93		-	dry	-	<69.82	
	04/18/94		-	11.18	-	74.04	
	08/16/94		-	11.47	-	73.75	
MW-12	06/17/93	94.39	-	16.16	-	78.23	
	10/15/93		-	dry	-	<71.23	
	04/18/94		-	18.85	-	75.54	
	08/16/94		-	19.17	-	75.22	
MW-13	06/17/93	97.70	15.03	16.14	1.11	82.38	*
	10/15/93		-	dry	-	<73.02	
	04/18/94		-	19.10	-	78.60	
	08/16/94		-	19.47	-	78.23	
MW-14	06/17/93	100.04	-	9.83	-	90.21	
	10/15/93		-	dry	-	<79.73	
	04/18/94		-	13.77	-	86.27	
	08/16/94		-	18.08	-	81.96	
MW-15	06/17/93	99.53	-	17.54	-	81.99	
	10/15/93		-	25.57	-	73.96	
	04/18/94		-	21.28	-	78.25	
	08/16/94		-	22.08	-	77.45	
MW-16	06/17/93	100.00	-	18.03	-	81.97	
	10/15/93		-	23.20	-	76.80	
	04/18/94		-	20.02	-	79.98	
	08/16/94		-	21.09	-	78.91	
MW-17	06/17/93	96.25	-	15.19	-	81.06	
	10/15/93		-	22.84	-	73.41	
	04/18/94		-	16.46	-	79.79	
	08/16/94		-	17.60	-	78.65	
MW-18	06/17/93	95.17	-	14.93	-	80.24	
	10/15/93		-	22.75	-	72.42	
	04/18/94		-	16.07	-	79.10	
	08/16/94		NI	NI	NI	NI	

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*
MW-19	06/17/93	94.02	-	13.80	-	80.22
	10/15/93		-	dry	-	<71.71
	04/18/94		-	14.38	-	79.64
	08/16/94		-	15.18	-	78.84
MW-20	06/17/93	98.30	-	21.26	-	77.04
	10/15/93		-	28.00	-	70.30
	09/08/93		-	33.10	-	65.20
	04/18/94		-	23.28	-	75.02
	08/16/94		-	23.53	-	74.77
MW-21	09/08/93	97.08	-	34.28	-	62.80
	10/15/93		-	35.86	-	61.22
	04/18/94		-	24.12	-	72.96
	08/16/94		-	21.74	-	75.34
MW-22	09/08/93	100.30	-	30.96	-	69.34
	10/15/93		-	33.00	-	67.30
	04/18/94		-	29.23	-	71.07
	08/16/94		-	27.48	-	72.82

Notes:

1. Elevations referenced to assumed site datum (MW-1 = 100.0 feet).
2. Depths to ground water measured from top of casing.
3. Ground water depths and fuel thickness were obtained using an oil/water interface probe manufactured by ORS.
4. MW-6 and MW-15 are Type III and Type IV (deep) monitoring wells.
5. * = Adjusted ground water elevation based on a specific gravity for wells with free product, SG of fuel is approximately 0.74.
6. NI= Not Included.

Prepared By B.SHANE 10/11/94 Checked By: S. RANKIN 10/11/94

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-1	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-2	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-4	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-5	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-6	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	7200	400	59	1600	9259	1200
	08/18/94	NS	NS	NS	NS	NS	NS
MW-7	04/01/93	170	38	130	220	558	11
	06/10/93	17	ND	ND	9.6	26.6	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-8	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-9	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-10	04/01/93	ND	1.7	ND	3.1	4.8	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

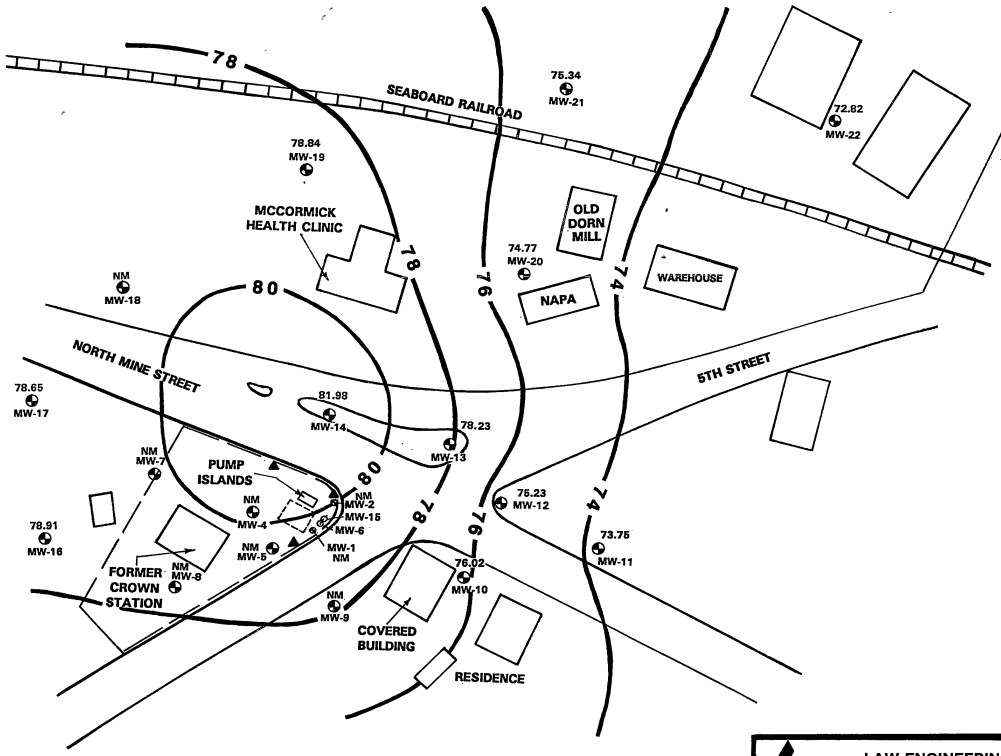
Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-11	04/01/93	ND	5.9	5.6	33	44.5	7.9
	06/10/93	ND	ND	ND	3.4	3.4	ND
	04/19/94	ND	ND	1.1	5.8	6.9	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-12	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-13	04/01/93	20000	35000	3000	15000	73000	2300
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	23000	46000	3800	19000	91800	1000
	08/18/94	17000	38000	4400	24000	83400	ND
MW-14	04/01/93	620	3600	500	2900	7620	ND
	06/10/93	43	35	25	270	373	ND
	04/19/94	ND	1.2	1.3	29	31.5	ND
	08/18/94	3.9	7.3	1.6	60	72.8	ND
MW-15	12/10/92 (85ft)	3400	22	ND	400	3822	350
	12/10/92 (100ft)	4300	ND	ND	150	4450	570
	12/15/92 (130ft)	3100	5.2	15	200	3320.2	430
	04/01/93	1	ND	2.4	ND	3.4	220
	06/10/93	26	ND	ND	ND	26	59
	04/19/94	5.2	ND	ND	ND	5.2	16
	08/18/94	1.5	25	7.3	40	73.8	11
MW-16	06/10/93	ND	ND	ND	ND	ND	14
	04/19/94	ND	ND	ND	ND	ND	5.7
	08/18/94	ND	1.3	ND	ND	1.3	ND
MW-17	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-18	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	NS	NS	NS	NS	NS	NS
MW-19	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-20	06/10/93	16000	31000	3100	15000	65100	2800
	04/19/94	12000	25000	3000	17000	57000	1900
	08/18/94	14000	27000	3000	15000	59000	1900

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-21	09/08/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-22	08/17/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
Trip Blank	08/15/94	ND	ND	ND	ND	ND	ND
SC Action Level		5	1000	700	10000	-	-

Notes:
1. ND = Not Detected
2. NS = Not Sampled
3. ug/l = micrograms per liter
4. MW-6 and 15 are Type III and Type IV (deep) monitoring wells, respectively.
5. BTEX = Benzene, Toluene, Ethyl-benzene, and Xylenes
6. MTBE = Methy-Tertiary- Butyl Ether

Prepared By: B. SHANE 10/11/94 | Checked By: S. RANKIN 10/11/94



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EXPLANATION

- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- TYPE IV MONITORING WELL
- RECOVERY WELL
- APPROXIMATE LOCATION OF UST'S
- 76 GROUND-WATER CONTOUR
- APPROXIMATE GROUND-WATER FLOW DIRECTION
- APPROXIMATE PROPETY BOUNDRY

NOTES:

1) MW-6 AND MW-15 ARE TYPE III (DEEP) AND TYPE IV (DEEP) MONITORING WELLS AND ARE NOT USED IN CONTOURING.
2) ELEVATIONS REFERENCED TO ASSUMED DATUM ON SITE.
3) GROUND-WATER CONTOURS BASED ON MEASUREMENTS OBTAINED ON 8/16/94.
4) NM = NOT MEASURED
5) CONTOUR INTEVAL = 2 FEET
6) CONTOURS ARE COMPUTER GENERATED USING "SURFER" BY GOLDEN GRAPHICS AND MODIFIED BY HAND BY LAW ENGINEERING PERSONNEL.

100 50 0 100
APPROXIMATE SCALE IN FEET

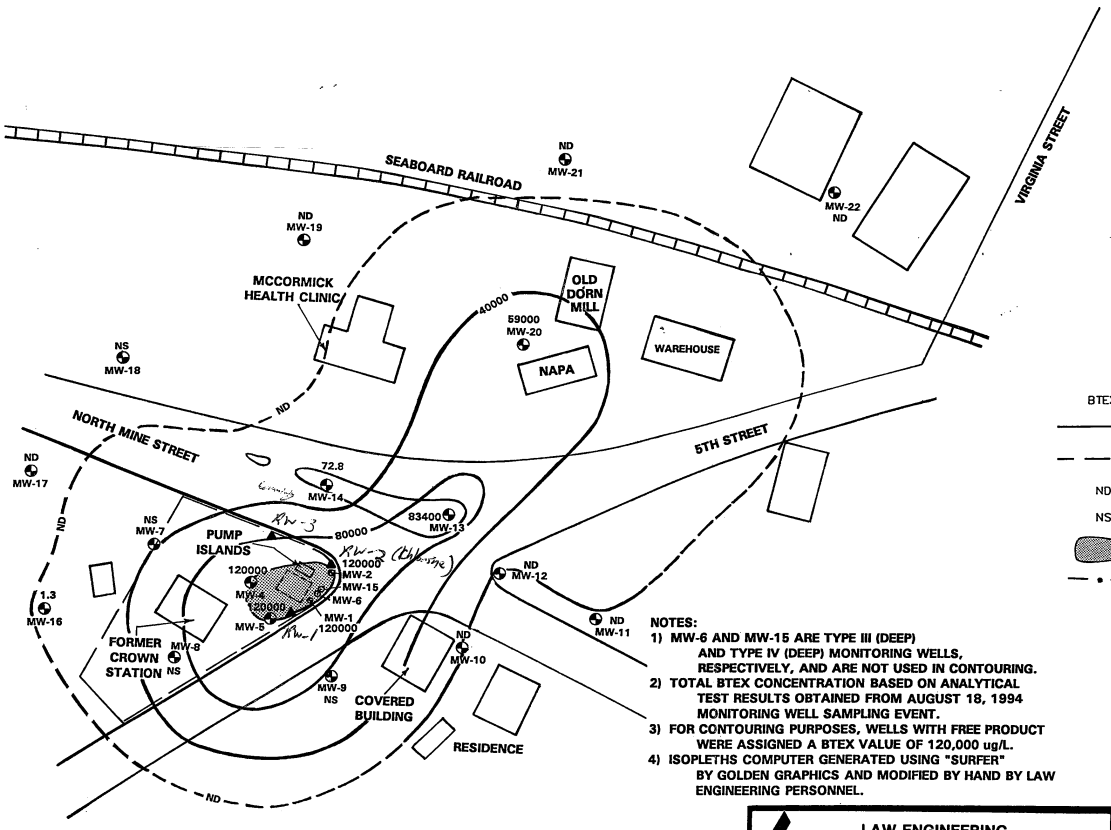
REF: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP PHOTOGRAPH OF MCCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum
Baltimore, Maryland
Law Engineering Project No. 499-2-4051-03

Ground-Water Contour Map
Former Crown Station No. SC 576
McCormick, South Carolina

DWN. BY	DJD	10/94	SCALE: As Shown
CKD. BY	SCR	10/94	FIGURE 1
APPR'D.	BEC	10/94	



EXPLANATION

- TYPE II MONITORING WELL
- TYPE III MONITORING WELL
- TYPE IV MONITORING WELL
- RECOVERY WELL
- APPROXIMATE LOCATION OF UST'S
- BTEX — BENZENE, TOLUENE, ETHYLBENZENE AND XYLENES
- TOTAL BTEX CONCENTRATION ISOPLETH (ug/L)
- ESTIMATED TOTAL BTEX CONCENTRATION ISOPLETH (ug/L)
- ND — NOT DETECTED
- NS — NOT SAMPLED - FREE PRODUCT IN WELL
- APPROXIMATE LOCATION OF FREE PRODUCT
- APPROXIMATE PROPERTY BOUNDARY

CONTOUR INTERVAL = 40,000 ug/l

100 50 0 100
APPROXIMATE SCALE IN FEET

NOTES:

1) MW-6 AND MW-15 ARE TYPE III (DEEP) AND TYPE IV (DEEP) MONITORING WELLS, RESPECTIVELY, AND ARE NOT USED IN CONTOURING.
2) TOTAL BTEX CONCENTRATION BASED ON ANALYTICAL TEST RESULTS OBTAINED FROM AUGUST 18, 1994 MONITORING WELL SAMPLING EVENT.
3) FOR CONTOURING PURPOSES, WELLS WITH FREE PRODUCT WERE ASSIGNED A BTEX VALUE OF 120,000 ug/L.
4) ISOPLETHS COMPUTER GENERATED USING "SURFER" BY GOLDEN GRAPHICS AND MODIFIED BY HAND BY LAW ENGINEERING PERSONNEL.

REF: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP PHOTOGRAPH OF MCCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum
Baltimore, Maryland
Law Engineering Project No. 499-2-4051-03

TOTAL BTEX ISOPLETH MAP
Former Crown Station No. SC 576
McCormick, South Carolina

DWN. BY	DJD	10/94	SCALE: As Shown
CKD. BY	SCR	10/94	FIGURE 2
APPR'D.	BEC	10/94	

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

August 30, 1994

Bryan Shane
Law Engineering, Inc.
720 Gracern Road, Suite 132
Columbia, SC 29210

Subject: **Chemical Analysis of Samples Received on 08/23/94**
Project Number: 499-2-4051-03

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATIONAL LABORATORIES

Patrick Kelley
Hydrocarbon Supervisor

PK:pah

Enclosures: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
112 TOWN PARK DRIVE • KENNESAW, GA 30144
(404) 421-3400 • FAX (404) 421-3486

ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-10 Sampled Date/Time : 08/18/94 13:50
Matrix : W Received Date/Time : 08/23/94 08:49
Type : GRAB Received From/By : MAB/LG
Collector : MAB Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-02
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-11 Sampled Date/Time : 08/18/94 13:35
Matrix : W Received Date/Time : 08/23/94 08:49
Type : GRAB Received From/By : MAB/LG
Collector : MAB Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-03
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-12
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 13:20
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-04
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-13
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 12:55
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	1000	ND	08/27/94	OR
Benzene	EPA 602	ug/l	200	17000	08/27/94	OR
Toluene	EPA 602	ug/l	200	38000	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	200	4400	08/27/94	OR
Xylene, Total	EPA 602	ug/l	400	24000	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patricia Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-05
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-14
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 13:10
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	3.9	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	7.3	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	1.6	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	60	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-06
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-15
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 14:00
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	11	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	1.5	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	25	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	7.3	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	40	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patricia Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-07
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-16 Sampled Date/Time : 08/18/94 15:45
Matrix : W Received Date/Time : 08/23/94 08:49
Type : GRAB Received From/By : MAB/LG
Collector : MAB Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	1.3	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-08
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-17
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 16:10
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-09
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-19
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 12:45
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-10
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-20 Sampled Date/Time : 08/18/94 12:30
Matrix : W Received Date/Time : 08/23/94 08:49
Type : GRAB Received From/By : MAB/LG
Collector : MAB Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	850	1900	08/31/94	OR
Benzene	EPA 602	ug/l	170	14000	08/31/94	OR
Toluene	EPA 602	ug/l	170	27000	08/31/94	OR
Ethylbenzene	EPA 602	ug/l	170	3000	08/31/94	OR
Xylene, Total	EPA 602	ug/l	340	15000	08/31/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-11
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-21
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 15:00
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31518
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	09/01/94	OR
Benzene	EPA 602	ug/l	1.0	ND	09/01/94	OR
Toluene	EPA 602	ug/l	1.0	ND	09/01/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	09/01/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	09/01/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-12
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-22
Matrix : W
Type : GRAB
Collector : MAB

Sampled Date/Time : 08/18/94 11:45
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31519
Number of Containers : 3

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelley

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 09/01/94
Page 1

--- Project Information ---

Lab Number : 64-8797-13
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN STATION

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 08/15/94 :
Received Date/Time : 08/23/94 08:49
Received From/By : MAB/LG
Chain of Custody : 31519
Number of Containers : 4

Parameter	Method	Units	DL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether	EPA 602	ug/l	5.0	ND	08/27/94	OR
Benzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Toluene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	08/27/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	08/27/94	OR

Remarks:
DL = Detection Limit ND = Not Detected at the DL
Unless otherwise noted, all soil test results are calculated based on dry weight.

Signed Patrick Kelly

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

Nº 31518

64-8797

SAMPLING INFORMATION
NAME OF FACILITY: Former Crown Station
STREET ADDRESS:
CITY / STATE: McCormick, S.C. ZIP:

PROJECT NAME	JOB NO.
Former Crown Station	499-2-4051-03
SAMPLERS (SIGNATURE): Michael A. Bradford	SAMPLERS INITIALS (PRINT): MAB
SAMPLING DATE: 8-18-94	

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE: G = GLASS, PL = PLASTIC; 40 ml G VOA Vial (HCl); 40 ml G VOA Vial; 1 L G Amber Bottle; 500 ml G Amber Bottle (H2SO4); 1 L PL Bottle; 1 L PL Amber Bottle; 1 L PL Bottle (HNO3); 1 L PL Bottle (H2SO4); 1 L PL Bottle (Ascorbic Acid + NaOH); 1 L PL Bottle (Zn Acetate + NaOH); 250 ml PL Bottle; Teflon Bottle; 32 oz. G Jar; 8 oz. G Jar; 4 oz. G Jar; 2 oz. G SEPTA Jar	FOR LAB USE ONLY
1:50 PM	✓		W	MW-10	3	3	64-8797-01
1:35 PM	✓		W	MW-11	3	3	-02
1:20 PM	✓		W	MW-12	3	3	-03
12:55 PM	✓		W	MW-13	3	3	-04
1:10 PM	✓		W	MW-14	3	3	-05
2:00 PM	✓		W	MW-15	3	3	-06
3:45 PM	✓		W	MW-16	3	3	-07
4:10 PM	✓		W	MW-17	3	3	-08
12:45 PM	✓		W	MW-[redacted]19	3	3	-09
12:30 PM	✓		W	MW-20	3	3	-10
3:00 PM	✓		W	MW-21	3	3	-11

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
Michael Bradford	8/22/94 10:00 AM					8/23/94 8:49

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

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REMARKS

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Are Custody Seals Present? Yes ☑ No ☐ Are Custody Seals Intact? Yes ☑ No ☐ N/A ☐ Inspected By: [signature] Date: 8/23/94

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

№ 31519

64-8797

SAMPLING INFORMATION
NAME OF FACILITY: Former Crown Station
STREET ADDRESS:
CITY / STATE: McCormick, S.C. ZIP:

PROJECT NAME: Former Crown Station
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE): Michael A. Bradford
SAMPLERS INITIALS (PRINT): MAB
SAMPLING DATE: 8-18-94

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE G = GLASS PL = PLASTIC: 40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	500 ml G Amber Bottle (H_2SO_4)	1 L PL Bottle	1 L PL Amber Bottle	1 L PL Bottle (HNO3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	FOR LAB USE ONLY
11:45 AM	✓		W	MW-22	3	3																64-8797-12
			W	Trip Blanks	4																	-13

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
Michael A. Bradford	8/22/94 10:00 AM					8/23/94 8:45

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

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REMARKS

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Are Custody Seals Present? Yes ☑ No ☐ Are Custody Seals Intact? Yes ☑ No ☐ N/A ☐ Inspected By: [signature] Date: 8-23-94

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

June 15, 1994

Mr. Aubrey Stewart
South Carolina Department of Health
and Environmental Control
Ground-Water Protection Division
2600 Bull Street
Columbia, South Carolina 29201

RECEIVED
JUN 17 1994
Groundwater Protection
Division

Subject: **Quarterly Ground-water Sampling Results**
Former Crown Station No. SC-576
200 North Mine Street (SC Hwy 28)
McCormick, South Carolina
GWPD Site I.D. #6443, PCAS #7463
Law Engineering Project No. 499-2-4051-03

Dear Mr. Stewart:

Law Engineering (LAW) is pleased to submit the results of the recent ground-water sampling and analysis event for the subject facility. As authorized by your acceptance of our Proposal No. 6008M4 Law Engineering has completed the following tasks at the subject site:

- Obtained depth to water and product measurements from monitoring wells MW-1, MW-2, and MW-4 through MW-22 on April 18, 1994.
- Purged and sampled monitoring wells MW-1, MW-2, and MW-4 through MW-22 (with the exception of those which were dry or contained of free product), on April 18 and 19, 1994.
- Shipped the ground-water samples to Law Environmental National Laboratories (LENL) in Kennesaw, Georgia for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tertiary butyl ether (MTBE). Laboratory reports and chain-of-custody records are attached in the Appendix.

Table 1 presents ground-water elevation data collected by LAW for the current and the four previous water level measurements. Table 2 presents a summary of the analytical results from April 18, 1994 and the two previous sampling events. Figure 1 presents the ground-water contours determined from the April 18, water level measurements. Figure 2 presents a total BTEX isopleth map for the April 1994 sampling event.

LAW ENGINEERING, INC.
720 GRACERN ROAD, SUITE 132 • COLUMBIA, SC 29210
P.O. BOX 21679 • COLUMBIA, SC 29221-1679
(803) 798-1200 • FAX (803) 750-1303
ONE OF THE LAW COMPANIES

Law Engineering appreciates the opportunity to continue to provide our environmental services on this project. Please feel free to contact us at (803) 798-1200 if you have any questions or comments concerning this report.

Sincerely,

LAW ENGINEERING, INC.

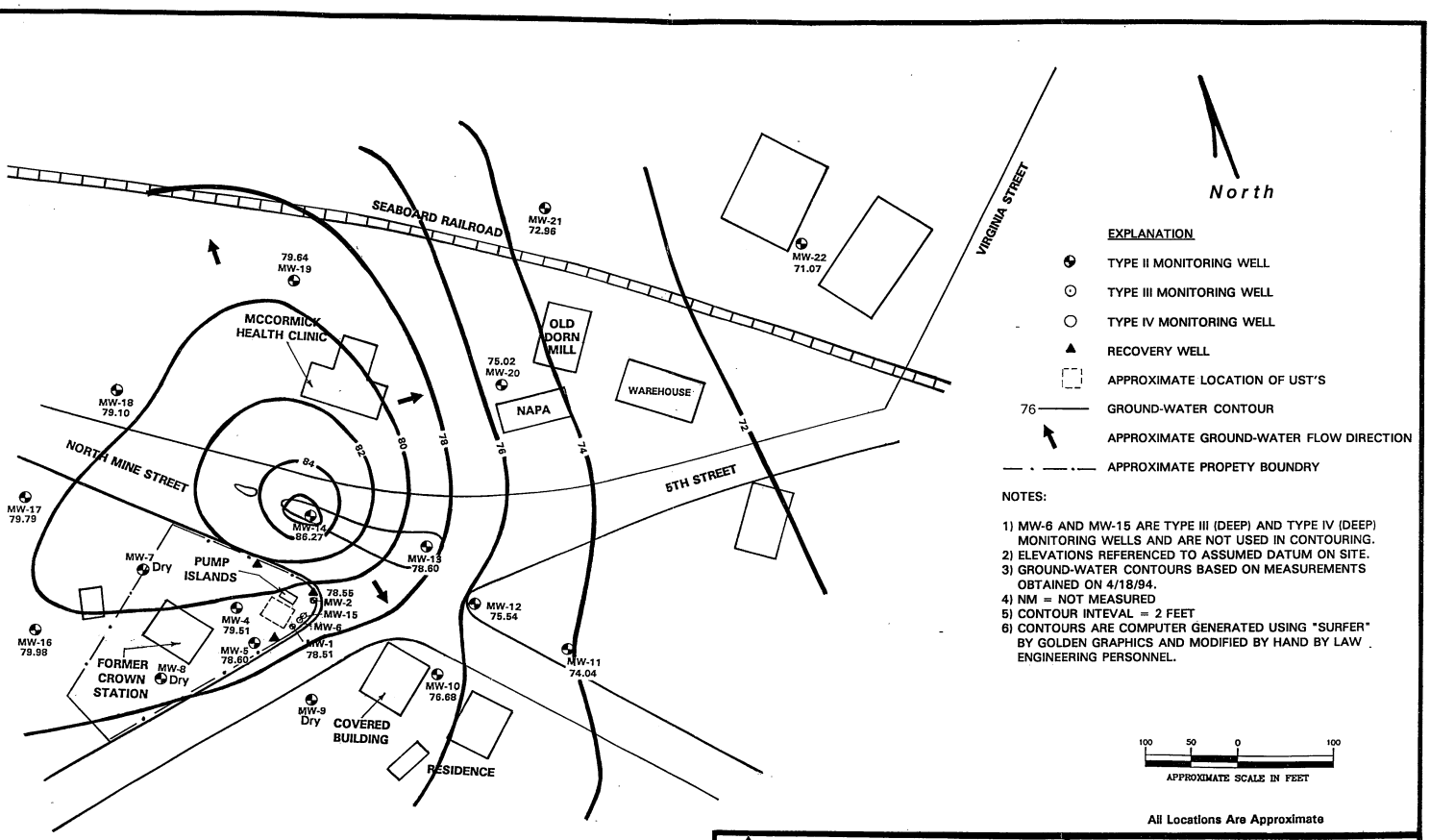
George A. Sembos, E.I.T.
Staff Engineer

Bryan T. Shane, P.G.
Senior Geologist
Registered SC # 1102

Brian E. Chew, Sr., P.G.
Principal Hydrogeologist
Registered SC # 184

Attachments

gas/crn4/18/94



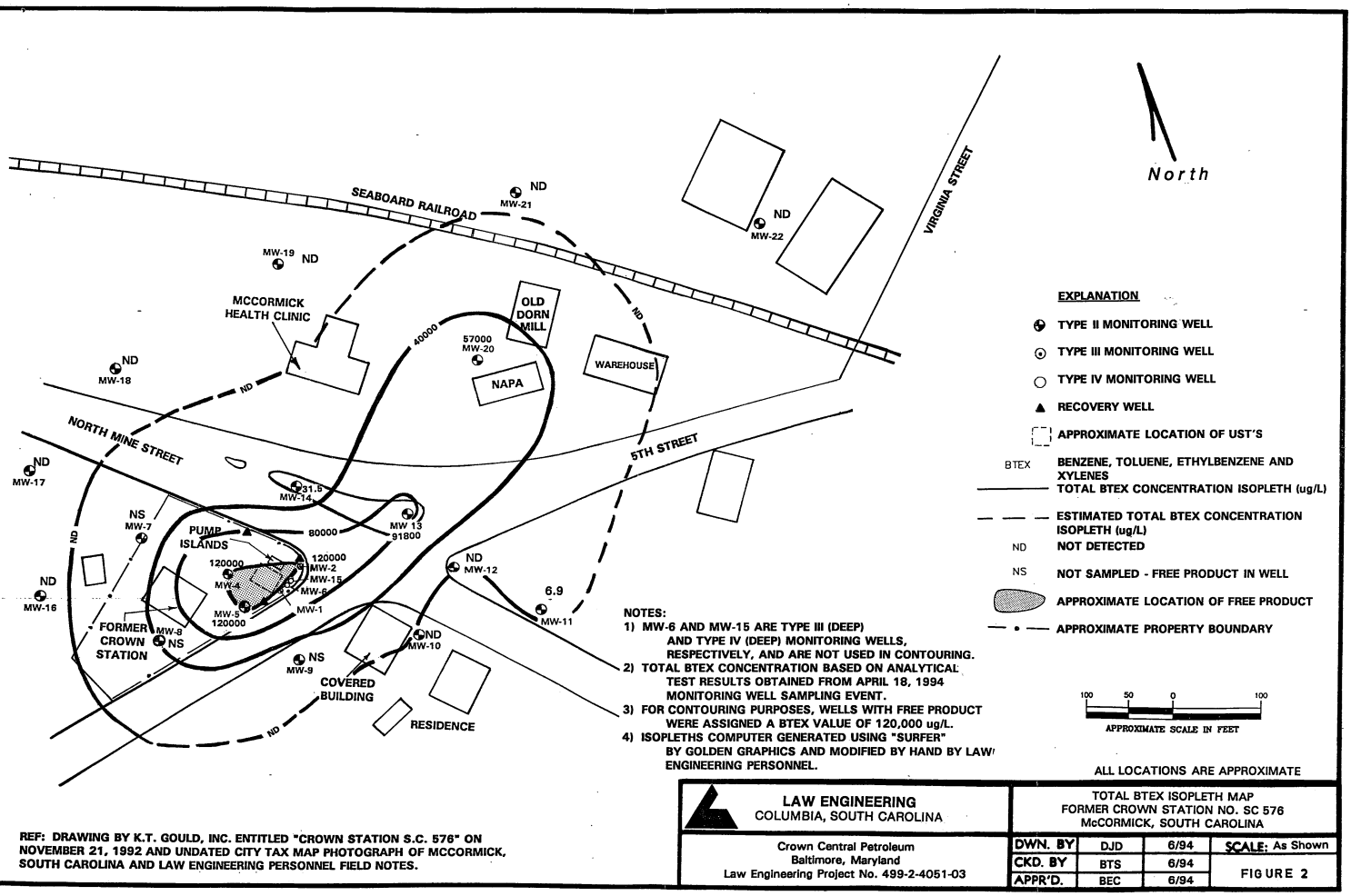
REF: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP PHOTOGRAPH OF MCCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum
Baltimore, Maryland
Law Engineering Project No. 499-2-4051-03

Ground-Water Contour Map
Former Crown Station No. SC 576
McCormick, South Carolina

DWN. BY	DJD	6/94	SCALE: As Shown
CKD. BY	BTS	6/94	
APPR'D.	BEC	6/94	FIGURE 1



NOTES:
1) MW-6 AND MW-15 ARE TYPE III (DEEP) AND TYPE IV (DEEP) MONITORING WELLS, RESPECTIVELY, AND ARE NOT USED IN CONTOURING.
2) TOTAL BTEX CONCENTRATION BASED ON ANALYTICAL TEST RESULTS OBTAINED FROM APRIL 18, 1994 MONITORING WELL SAMPLING EVENT.
3) FOR CONTOURING PURPOSES, WELLS WITH FREE PRODUCT WERE ASSIGNED A BTEX VALUE OF 120,000 ug/L.
4) ISOPLETHS COMPUTER GENERATED USING "SURFER" BY GOLDEN GRAPHICS AND MODIFIED BY HAND BY LAW ENGINEERING PERSONNEL.

ALL LOCATIONS ARE APPROXIMATE

REF: DRAWING BY K.T. GOULD, INC. ENTITLED "CROWN STATION S.C. 576" ON NOVEMBER 21, 1992 AND UNDATED CITY TAX MAP PHOTOGRAPH OF MCCORMICK, SOUTH CAROLINA AND LAW ENGINEERING PERSONNEL FIELD NOTES.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum
Baltimore, Maryland
Law Engineering Project No. 499-2-4051-03

TOTAL BTEX ISOPLETH MAP
FORMER CROWN STATION NO. SC 576
McCORMICK, SOUTH CAROLINA

DWN. BY	DJD	6/94	SCALE: As Shown
CKD. BY	BTS	6/94	FIGURE 2
APPR'D.	BEC	6/94	

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Casing (feet)	Depth to Product (feet)	Depth to Ground-Water (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)	
MW-1	03/30/93	100.00	12.20	17.48	5.28	86.43	•
	06/10/93		15.11	20.85	5.74	83.40	•
	06/17/93		15.81	20.03	4.22	83.09	•
	10/15/93		26.26	>30.0	>3.74	<70.00	•
	04/18/94		20.67	23.83	3.16	78.51	•
MW-2	03/30/93	98.76	11.64	14.14	2.50	86.47	•
	06/10/93		14.29	15.21	0.92	84.23	•
	06/17/93		15.10	15.15	0.05	83.65	•
	10/15/93		-	25.41	-	73.35	
	04/18/94		19.19	23.12	3.93	78.55	•
MW-4	03/30/93	101.00	11.65	14.80	3.15	88.53	•
	06/10/93		15.74	20.15	4.41	81.87	•
	06/17/93		16.55	16.88	0.33	82.12	•
	10/15/93		-	dry	-	<75.30	
	04/18/94		20.77	23.54	2.77	79.51	•
MW-5	03/30/93	101.63	14.54	17.18	2.64	86.40	•
	06/10/93		17.45	17.56	0.11	84.15	•
	06/17/93		18.07	18.29	0.22	83.50	•
	10/15/93		27.51	>32.9	>5.39	<72.72	
	04/18/94		22.45	24.68	2.23	78.60	•
MW-6	03/30/93	99.89	-	13.60	-	86.29	
	06/10/93		16.76	16.77	0.01	83.13	•
	06/17/93		-	17.50	-	82.39	
	10/15/93		-	26.85	-	73.04	
	04/18/94		-	21.45	-	78.44	
MW-7	03/30/93	100.40	-	9.90	-	90.50	
	06/10/93		-	16.20	-	84.20	
	06/17/93		-	17.03	-	83.37	
	10/15/93		-	dry	-	<80.76	
	04/18/94		-	dry	-	<80.76	
MW-8	03/30/93	103.31	-	15.40	-	87.91	
	06/10/93		-	18.38	-	84.93	
	06/17/93		-	19.10	-	84.21	
	10/15/93		-	dry	-	<82.95	
	04/18/94		-	dry	-	<82.95	

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Casing (feet)	Depth to Product (feet)	Depth to Ground-Water (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)
MW-9	03/30/93	98.61	-	11.88	-	86.73
	06/10/93		-	15.23	-	83.38
	06/17/93		-	15.86	-	82.75
	10/15/93		-	dry	-	<80.29
	04/18/94		-	dry	-	<80.29
MW-10	03/30/93	92.79	-	12.18	-	80.61
	06/10/93		-	13.79	-	79.00
	06/17/93		-	14.43	-	78.36
	10/15/93		-	dry	-	<74.54
	04/18/94		-	16.11	-	76.68
MW-11	03/30/93	85.22	-	5.13	-	80.09
	06/10/93		-	8.83	-	76.39
	06/17/93		-	9.41	-	75.81
	10/15/93		-	dry	-	<69.82
	04/18/94		-	11.18	-	74.04
MW-12	03/30/93	94.39	-	12.03	-	82.36
	06/10/93		-	15.55	-	78.84
	06/17/93		-	16.16	-	78.23
	10/15/93		-	dry	-	<71.23
	04/18/94		-	18.85	-	75.54
MW-13	03/30/93	97.70	-	11.52	-	86.18
	06/10/93		14.20	14.29	0.09	83.48
	06/17/93		15.03	16.14	1.11	82.38
	10/15/93		-	dry	-	<73.02
	04/18/94		-	19.10	-	78.60
MW-14	03/30/93	100.04	-	9.00	-	91.04
	06/10/93		-	9.75	-	90.29
	06/17/93		-	9.83	-	90.21
	10/15/93		-	dry	-	<79.73
	04/18/94		-	13.77	-	86.27
MW-15	03/30/93	99.53	-	13.51	-	86.02
	06/10/93		-	16.83	-	82.70
	06/17/93		-	17.54	-	81.99
	10/15/93		-	25.57	-	73.96
	04/18/94		-	21.28	-	78.25

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Casing (feet)	Depth to Product (feet)	Depth to Ground-Water (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)
MW-16	06/10/93	100.00	-	17.29	-	82.71
	06/17/93		-	18.03	-	81.97
	10/15/93		-	23.20	-	76.80
	04/18/94		-	20.02	-	79.98
MW-17	06/10/93	96.25	-	14.38	-	81.87
	06/17/93		-	15.19	-	81.06
	10/15/93		-	22.84	-	73.41
	04/18/94		-	16.46	-	79.79
MW-18	06/10/93	95.17	-	14.30	-	80.87
	06/17/93		-	14.93	-	80.24
	10/15/93		-	22.75	-	72.42
	04/18/94		-	16.07	-	79.10
MW-19	06/10/93	94.02	-	13.13	-	80.89
	06/17/93		-	13.80	-	80.22
	10/15/93		-	dry	-	<71.71
	04/18/94		-	14.38	-	79.64
MW-20	06/10/93	98.30	-	20.51	-	77.79
	06/17/93		-	21.26	-	77.04
	09/08/93		-	28.00	-	70.30
	10/15/93		-	33.10	-	65.20
	04/18/94		-	23.28	-	75.02
MW-21	09/08/93	97.08	-	34.28	-	62.80
	10/15/93		-	35.86	-	61.22
	04/18/94		-	24.12	-	72.96
MW-22	09/08/93	100.30	-	30.96	-	69.34
	10/15/93		-	33.00	-	67.30
	04/18/94		-	29.23	-	71.07

Notes:
1. Elevations referenced to assumed site datum (MW-1 = 100.0 feet).
2. Depths to ground water measured from top of casing.
3. Ground-water depths and fuel thickness were obtained using an oil/water interface probe manufactured by ORS.
4. MW-6 and MW-15 are Type III and Type IV (deep) monitoring wells, respectively.
5. * = Adjusted ground-water elevation based on a specific gravity for free product, 0.74.

Prepared By: G.SEMBOS 6/15/94 Checked By: B. SHANE 6/15/94

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-1	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
MW-2	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
MW-4	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
MW-5	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
MW-6	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	7200	400	59	1600	9259	1200
MW-7	04/01/93	170	38	130	220	558	11
	06/10/93	17	ND	ND	9.6	26.6	ND
	04/19/94	NS	NS	NS	NS	NS	NS
MW-8	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
MW-9	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
MW-10	04/01/93	ND	1.7	ND	3.1	4.8	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-11	04/01/93	ND	5.9	5.6	33	44.5	7.9
	06/10/93	ND	ND	ND	3.4	3.4	ND
	04/19/94	ND	ND	1.1	5.8	6.9	ND
MW-12	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-13	04/01/93	20000	35000	3000	15000	73000	2300
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	23000	46000	3800	19000	91800	1000

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-14	04/01/93	620	3600	500	2900	7620	ND
	06/10/93	43	35	25	270	373	ND
	04/19/94	ND	1.2	1.3	29	31.5	ND
MW-15	12/10/92 (85ft)	3400	22	ND	400	3822	350
	12/10/92 (100ft)	4300	ND	ND	150	4450	570
	12/15/92 (130ft)	3100	5.2	15	200	3320.2	430
	04/01/93	1	ND	2.4	ND	3.4	220
	06/10/93	26	ND	ND	ND	26	59
	04/19/94	5.2	ND	ND	ND	5.2	16
MW-16	06/10/93	ND	ND	ND	ND	ND	14
	04/19/94	ND	ND	ND	ND	ND	5.7
MW-17	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-18	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-19	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-20	06/10/93	16000	31000	3100	15000	65100	2800
	04/19/94	12000	25000	3000	17000	57000	1900
MW-21	09/08/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
MW-22	08/17/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
Trip Blank	04/15/94	ND	ND	ND	ND	ND	ND
SC Action Level		5	1000	700	10000	-	-

Notes:
1. ND = Not Detected
2. NS = Not Sampled
3. ug/l = micrograms per liter
4. MW-6 and 15 are Type III and Type IV (deep) monitoring wells, respectively.
5. BTEX = Benzene, Toluene, Ethyl-benzene, and Xylenes
6. MTBE = Methy-Tertiary- Butyl Ether

Prepared By: G. SEMBOS 6/15/94

Checked By: B. SHANE 6/15/94

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

April 22, 1994

Bryan Shane
Law Engineering, Inc.
720 Gracern Road, Suite 132
Columbia, SC 29210

Subject: **Chemical Analysis of Samples Received on 04/20/94**
Project Number: 499-2-4051-03

Dear Mr. Shane:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATIONAL LABORATORIES

Linda Harris
Hydrocarbon Supervisor

LFH:so

Enclosures: Data Report
Invoice

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORIES
112 TOWN PARK DRIVE • KENNESAW, GA 30144
(404) 421-3400 • FAX (404) 421-3486

ONE OF THE LAW COMPANIES

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-01
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-6
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 12:05
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	140	1200	04/21/94	OR
Benzene	EPA 602	ug/l	36	7200	04/21/94	OR
Toluene	EPA 602	ug/l	36	400	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	36	59	04/21/94	OR
Xylene, Total	EPA 602	ug/l	72	1600	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-02
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-10 Sampled Date/Time : 04/19/94 10:10
Matrix : W Received Date/Time : 04/20/94 09:10
Type : GRAB Received From/By : DWH/LG
Collector : DWH Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-03
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-11
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 10:20
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	1.1	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	5.8	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

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--- Project Information ---

Lab Number : 64-8298-04
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-12
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 10:40
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
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--- Project Information ---

Lab Number : 64-8298-05
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-13
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 10:50
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	850	1000	04/21/94	OR
Benzene	EPA 602	ug/l	170	23000	04/21/94	OR
Toluene	EPA 602	ug/l	170	46000	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	170	3800	04/21/94	OR
Xylene, Total	EPA 602	ug/l	340	19000	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
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--- Project Information ---

Lab Number : 64-8298-06
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-14
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:00
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	1.2	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	1.3	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	29	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
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--- Project Information ---

Lab Number : 64-8298-07
Project No. : 499-2-4051-03
Project Name : FORMER CROWN SC 576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-15
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 12:10
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	16	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	5.2	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
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--- Project Information ---

Lab Number : 64-8298-08
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-16
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:05
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	5.7	04/21/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/21/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/21/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
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--- Project Information ---

Lab Number : 64-8298-09
Project No. : 499-2-4051-03
Project Name : FORMER CROWN SC 576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-17
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:10
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-10
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-18
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:20
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-11
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-19 Sampled Date/Time : 04/19/94 11:30
Matrix : W Received Date/Time : 04/20/94 09:10
Type : GRAB Received From/By : DWH/LG
Collector : DWH Chain of Custody : 28715
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-12
Project No. : 499-2-4051-03
Project Name : FORMER CROWN SC 576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-20
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:35
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28713
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	650	1900	04/22/94	OR
Benzene	EPA 602	ug/l	130	12000	04/22/94	OR
Toluene	EPA 602	ug/l	130	25000	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	130	3000	04/22/94	OR
Xylene, Total	EPA 602	ug/l	260	17000	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-13
Project No. : 499-2-4051-03
Project Name : FORMER CROWN SC 576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-21
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:45
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28713
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-14
Project No. : 499-2-4051-03
Project Name : FORMER CROWN SC 576

Cust. No. :

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : MW-22
Matrix : W
Type : GRAB
Collector : DWH

Sampled Date/Time : 04/19/94 11:50
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28713
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/22/94
Page 1

--- Project Information ---

Lab Number : 64-8298-15
Project No. : 499-2-4051-03 Cust. No. :
Project Name : FORMER CROWN SC 576

Manager: BRYAN SHANE

--- Sample Information ---

Station ID : TRIP BLANK
Matrix : W
Type : GRAB
Collector :

Sampled Date/Time : 04/15/94 :
Received Date/Time : 04/20/94 09:10
Received From/By : DWH/LG
Chain of Custody : 28713
Number of Containers : 4

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
-- GC ANALYSIS (BTEX) RESULTS --						
Methyl-Tertiary-Butyl Ether (MTBE)	EPA 602	ug/l	5.0	ND	04/22/94	OR
Benzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Toluene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Ethylbenzene	EPA 602	ug/l	1.0	ND	04/22/94	OR
Xylene, Total	EPA 602	ug/l	2.0	ND	04/22/94	OR

Signed Linda Harm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

CHAIN OF CUSTODY RECORD

№ 28715

64-8298

SAMPLING INFORMATION
NAME OF FACILITY: FORMER CROWN STA SC 576
STREET ADDRESS: 201 N. MINE ST
CITY / STATE: Mc CORMICK, S.C. ZIP:

PROJECT NAME: FORMER CROWN SC 576
JOB NO.: 499-2-4051-03
SAMPLERS (SIGNATURE):
SAMPLERS INITIALS (PRINT): DWH MAL
SAMPLING DATE: 4-19-94

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS		FOR LAB USE ONLY
12:05	X		W	MW-6	3	3	64-8298-01
10:10	X		W	MW-10	3	3	-02
10:20	X		W	MW-11	3	3	-03
10:40	X		W	MW-12	3	3	-04
10:50	X		W	MW-13	3	3	-05
11:00	X		W	MW-14	3	3	-06
12:10	X		W	MW-15	3	3	-07
11:05	X		W	MW-16	3	3	-08
11:10	X		W	MW-17	3	3	-09
11:20	X		W	MW-18	3	3	-10
11:30	X		W	MW-19	3	3	-11

CONTAINER TYPE: G = GLASS, PL = PLASTIC
40 ml G VOA Vial (HCl) | 40 ml G VOA Vial | 1 L G Amber Bottle | 500 ml G Amber Bottle (H_2SO_4) | 1 L PL Bottle | 1 L PL Amber Bottle | 1 L PL Bottle (HNO_3) | 1 L PL Bottle (H_2SO_4) | 1 L PL Bottle (Ascorbic Acid + NaOH) | 1 L PL Bottle (Zn Acetate + NaOH) | 250 ml PL Bottle | Teflon Bottle | 32 oz. G Jar | 8 oz. G Jar | 4 oz. G Jar | 2 oz. G SEPTA Jar

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
DWH	4-19-94 19:00					4/20/94 9:10

*MATRIX
WATER - W
SOIL / SEDIMENT - SO
SLUDGE - SL
OTHER - NA

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

For Law Environmental National Lab Use Only
Are Custody Seals Present? Yes ☑ No ☐ Are Custody Seals Intact? Yes ☑ No ☐ N/A ☐ Inspected By: Date: 4/20/94

CHAIN OF CUSTODY RECORD

№ 28713

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3306

64-8298

SAMPLING INFORMATION

NAME OF FACILITY: FORMER CROWN STA SC 576
STREET ADDRESS: 201 N. MINE ST
CITY / STATE: McCORMICK, S.C. ZIP:

PROJECT NAME	JOB NO.
FORMER CROWN SC 576	499-8-4051-03
SAMPLERS (SIGNATURE)	SAMPLERS INITIALS (PRINT)
SAMPLING DATE 4-19-94	

TIME	GRAB	COMP.	* MATRIX	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	CONTAINER TYPE G = GLASS PL = PLASTIC: 40 ml G VOA Vial (HCl)	40 ml G VOA Vial	1 L G Amber Bottle	500 ml G Amber Bottle	1 L PL Bottle	1 L PL Amber Bottle	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (HNO_3)	1 L PL Bottle (H_2SO_4)	1 L PL Bottle (Ascorbic Acid + NaOH)	1 L PL Bottle (Zn Acetate + NaOH)	250 ml PL Bottle	Teflon Bottle	32 oz. G Jar	8 oz. G Jar	4 oz. G Jar	2 oz. G SEPTA Jar	FOR LAB USE ONLY
11:35	X		W	MW-20	3	3																	64-8298-12
11:45	X		W	MW-21	3	3																	-13
11:50	X		W	MW-22	3	3																	-14
				TRIP BLANK	4	4																	-15

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME
	4-19-94 19:00					4/20/94 9:10

*MATRIX

WATER - W SLUDGE - SL
SOIL / SEDIMENT - SO OTHER - NA

DISTRIBUTION: ORIGINAL AND YELLOW COPIES ACCOMPANY SAMPLE SHIPMENT TO LABORATORY. PINK COPY RETAINED BY SAMPLERS. YELLOW COPY RETAINED BY LABORATORY.

REMARKS

For Law Environmental National Lab Use Only

Are Custody Seals Present? Yes ☑ No ☐ Are Custody Seals Intact? Yes ☑ No ☐ N/A ☐ Inspected By: Date: 4/20/94

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

FEB 27 2013

UST 24hed DOCKETING

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

Re: Corrective Action Options
One Stop: 201 N Mine Street, McCormick, SC
UST Permit # **06443**
Release reported December 13, 1989
Groundwater Assessment Report received March 25, 2011
McCormick County

Dear Mr. Janson,

The Underground Storage Tank (UST) Management Division (Division) of the South Carolina Department of Health and Environmental Control (Agency) has reviewed the referenced report submitted by Terracon, Inc. on your behalf. The report indicates that active corrective action is necessary at the site to mitigate petroleum impact and ensure that there is no detrimental exposure to human health or the environment.

Funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account will soon be available for active corrective action. The selected technology must reduce the petroleum chemicals of concern (CoC) concentrations to site-specific target levels (SSTLs) determined by the Division.

The SUPERB Site Rehabilitation and Fund Access Regulations R.61-98 require the UST owner/operator to develop and implement a reasonable, cost-effective corrective action to be performed by an Agency-certified site rehabilitation contractor. As the owner/operator for the release reported on December 13, 1989, you may choose one of two options as to how to proceed with this requirement: state lead or owner/operator lead.

State Lead Option:

- If you choose the state lead option, the Agency will procure a certified site rehabilitation contractor to perform corrective action on your behalf. The Agency will enter into an enforceable contract with the awarded contractor. As long as you do not interfere with or prohibit the work at your site, you will not be responsible in the event the state selected contractor does not perform appropriately or does not make satisfactory progress towards achieving the established corrective action goals. To utilize the state lead option, please sign and return the applicable Permission and Right-of-Entry forms within 15 days of the date of this letter.

Owner/Operator Lead Option:

- If you select the owner/operator lead option, you will be required to select a contractor to perform the corrective action. In order to assist you in determining the clean-up technology, time frame, clean-up levels, and associated costs, the Agency will prepare a technical specification package and provide you copies to send to contractors of your choice. In addition, the Agency will announce the request for solicitations in the South Carolina Business Opportunities, a bi-weekly state government

publication, to ensure that an adequate solicitation response is obtained so that a fair and competitive price can be established. This announcement will clearly indicate that you will select the contractor to implement the corrective action.

- Compensation to the contractor will be from the SUPERB Account, but you may have the obligation to pay your selected contractor for any costs not approved by the Agency.
- The Division strongly suggests that a written contract between you and the selected contractor be developed following the completion of the solicitation process. The parties to this contract would be you and the contractor you choose; the Agency would not be a party to this contract. The Agency's function would be to monitor and ensure progress of corrective action activities.
- If the contractor you select does not or cannot complete the required activities, you will be required to find another certified contractor to complete the required activities for the remainder of the existing financial approval amount. No additional funding from the SUPERB Account may be allowed. Under R.61-92, Part 280: Underground Storage Tank Control Regulations, you as the owner/operator are ultimately responsible to the Agency for the actions of your contractor. The Agency will pursue enforcement actions against you if the contractor you select does not make satisfactory progress towards achieving established corrective actions goals. To utilize the owner/operator lead option, please sign and return the enclosed Active Corrective Action Options Form within 15 days of the date of this letter.

On all correspondence or inquiries regarding this project, please reference UST Permit #06443. If you have questions regarding these options, please contact me at (803) 896-6649 or bursonsj@dhec.sc.gov.

Sincerely,

Scott J Burson, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Permission/Right-of-Entry forms
Active Corrective Action Options form

cc: Technical file (w/o enc)

DHEC/UST/07OptionsForm

D H E C

PROMOTE PROTECT PROSPER

Catherine B Templeton, Director

Promoting and protecting the health of the public and the environment

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

AUG 1 2 2014

Re: **Site Specific Work Plan Request**
One Stop (Mine Street Mart), 201 N. Mine Street, McCormick, SC
UST Permit # 06443
Release Reported December 13, 1989
AFVR Report Received May 2, 2012
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) has reviewed the referenced report. The report indicates the presence of chemicals of concern in the groundwater.

To determine what risk the referenced release may pose to the environment and public health, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of a groundwater sampling event as outlined in the UST Quality Assurance Program Plan (QAPP) Revision 2.0 is necessary. All monitoring wells and water supply wells associated with the release should be sampled for BTEX, naphthalene, MtBE, 1,2-DCA, 8-Oxygenates and EDB. The groundwater sampling event should be conducted in accordance with the UST QAPP and must be conducted in compliance with all applicable regulations. A copy of the Agency's QAPP for the Underground Storage Tank Division is available at http://www.dhec.sc.gov/Environment/LW/UST/ReleaseAssessmentClean-up/QualityAssurance/.

Please have your contractor complete and submit the Site Specific Work Plan and Cost Agreement within thirty (30) days of the date of this letter. The Site Specific Work Plan form can be found at http://www.dhec.sc.gov/Environment/LW/UST/ReleaseAssessmentClean-up/QualityAssurance/. Every component may not be necessary to complete the above scope of work. The State Underground Petroleum Environmental Response Bank (SUPERB) Account allowable cost for each component is included on the Assessment Component Cost Agreement Form. **Please note that technical and financial preapproval from the Agency must be issued before work begins**.

On all correspondence regarding this site, please reference UST Permit #06443. If you have questions or need additional information, feel free to call me at (803) 898-0606.

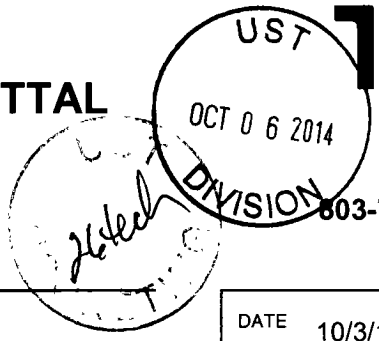
Sincerely,

John C. Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

cc: Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229

Technical File

LETTER OF TRANSMITTAL



Terracon
521 Clemson Rd.
Columbia, SC 29229
803-741-9000 / 803-741-9900 fax

TO Mr. John Bryant

SCDHEC
Bureau of Land and Waste Management

UST Program
2600 Bull St.

Columbia, SC 29201

DATE 10/3/14	JOB NO. 73058013
RE: One Stop (Former SC-576) Site-Specific Work Plan/ GWS	
UST Permit # 06443	

WE ARE SENDING YOU **X** Attached ☐ Under separate cover via _____ the following items:

COPIES	DATE	DESCRIPTION
1	10/3/14	Site Specific Work Plan/ GWS

THESE ARE TRANSMITTED as checked below:

- ☐ For approval
- ☐ For your use
- ☐ As requested
- ☐ For review and comment
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ Resubmit ___ copies for approval
- ☐ Submit ___ copies for distribution
- ☐ Return ___ corrected prints

REMARKS:

Enclosed is the SSWP for the above referenced site. Please feel free to call me if you have any questions.

COPY TO: _____

SIGNED: **Mike Hudgins**

If enclosures are not as noted, kindly notify us at once

D H E C
PROMOTE PROTECT PROSPER

Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: John C Bryant (SCDHEC Project Manager)
From: Mike Hudgins (Contractor Project Manager)
Contractor: Terracon Consultants UST Contractor Certification Number: 246

Facility Name One Stop (Mine Street Mart) (Former SC-576) UST Permit #. 06443
Facility Address: 201 N Mine Street
Responsible Party Crown Central, LLC Phone. 410-841-5552
RP Address P O Box 1168, Baltimore, MD 21203
Property Owner (if different): Mahesh Patel
Property Owner Address: 2811 Reidville Rd , Spartanburg, SC 29301
Current Use of Property: Former Convenience Store

Scope of Work (Please check all that apply)

☐ IGWA ☐ Tier II ☑ Groundwater Sampling ☐ GAC
☐ Tier I ☐ Monitoring Well Installation ☐ Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

☑ BTEXNMDCA (8260B) ☐ Lead ☐ BOD ☐ Methane
☐ Oxygenates (8260B) ☐ 8 RCRA Metals ☐ Nitrate ☐ Ethanol
☑ EDB (8011) ☐ TPH ☐ Sulfate ☐ Dissolved Iron
☐ PAH (8270D) ☐ pH ☐ Other _____

Soil:

☐ BTEXN ☐ 8 RCRA Metals ☐ TPH-DRO (3550B/8015B) ☐ Grain Size
☐ PAH ☐ Oil & Grease (9071) ☐ TPH-GRO (5030B/8015B) ☐ TOC

Air:

☐ BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected)

_____ Soil _____ Water Supply Wells _____ Air 6 Field Blank
48 Monitoring Wells _____ Surface Water 3 Duplicate 3 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point. and include their proposed locations on the attached map
# of shallow points proposed. _____ Estimated Footage: _____ feet per point
# of deep points proposed: _____ Estimated Footage. _____ feet per point
Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well and include their proposed locations on the attached map
# of shallow wells: _____ Estimated Footage _____ feet per point
# of deep wells: _____ Estimated Footage _____ feet per point
# of recovery wells: _____ Estimated Footage _____ feet per point
Monitoring Well development method (consistent with SOP). _____
Comments if warranted:

_____
_____
_____

UST Permit #: 06443 Facility Name: One Stop (Mine Street Mart) (Former SC-576)

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 7 Field Work Completion: 14
Report Submittal: 42 # of Copies Provided to Property Owners: _____

Aquifer Characterization
Pump Test: ☐ Slug Test: ☐ (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 430 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example. list wells to be sampled. wells to be abandoned/repaired. well pads/bolts/caps to replace. details of AFVR event. etc.
All monitoring wells associated with the UST release will be sampled as part of this investigation

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
____ Laboratory as indicated in ACQAP? (Yes/No) If no. indicate laboratory information below
Name of Laboratory _____
SCDHEC Certification Number _____
Name of Laboratory Director: _____

____ Well Driller as indicated in ACQAO? (Yes/No) If no. indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____

____ Other variations from ACQAP. Please describe below.

Attachments
1 Attach a copy of the relevant portion of the USGS topographic map showing the site location.

2. Prepare a site base map. This map must be accurately scaled but does not need to be surveyed. The map must include the following:
North Arrow
Location of property lines
Location of buildings
Previous soil sampling locations
Previous monitoring well locations
Proposed soil boring locations
Proposed monitoring well locations
Legend with facility name and address. UST permit number and bar scale
Streets or highways (indicate names and numbers)
Location of all present and former ASTs and USTs
Location of all potential receptors

3 Assessment Component Cost Agreement. SCDHEC Form D-3664

ASSESSMENT COMPONENT COST AGREEMENT
SOUTH CAROLINA
Department of Health and Environmental Control
Underground Storage Tank Program
State Underground Petroleum Environmental Response Bank

Facility Former SC-576

UST Permit # 06443 **CA#**

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1 Plan Preparation				
A1 Site-specific Work Plan	1	x	$150 00	**$150.00**
B1 Tax Map		x	$70 00	**$0.00**
C1 Tier II or Comp Plan / QAPP App B		x	$250 00	**$0.00**
2 A 1 Receptor Survey*		x	$551 00	**$0.00**
3 A1 Comprehensive Survey		x	$1,040 00	**$0.00**
4 Mob/Demob				
A1 Equipment		x	$1,020 00	**$0.00**
B1 Personnel	2	x	$423 00	**$846.00**
C1 Adverse Terrain Vehicle		x	$500 00	**$0.00**
5 A1 Soil Borings (hand augered)*		feet x	$5 00	**$0.00**
6 Soil Borings (drilled) & Field Screening				
A1 Standard		feet x	$15 00	**$0.00**
C1 Fractured Rock		feet x	$20 20	**$0.00**
7 A1 Soil Leachability Model		x	$60 00	**$0.00**
8 Abandonment*				
A1 2" or less		feet x	$3 10	**$0.00**
B1 2+" to 6"		feet x	$4 50	**$0.00**
C1 Dug/bored well		feet x	$15 00	**$0.00**
9 Well Installation*				
A1 Water Table (hand auger)		feet x	$10 60	**$0.00**
B1 Water Table		feet x	$38 00	**$0.00**
CC Telescoping		feet x	$50 00	**$0.00**
DD Rock Drilling		feet x	$58 00	**$0.00**
E1 2" Rock Coring		feet x	$30 90	**$0.00**
G1 Multi-sampling ports/screens		feet x	$33 40	**$0.00**
HH Recovery Well (4 " dia)		feet x	$45 00	**$0.00**
K Redevelop existing well		feet x	$11 00	**$0.00**
10 Sample collection				
A1 Groundwater (purge)	48	samples x	$60 00	**$2,880.00**
B1 Air or Vapors		samples x	$12 00	**$0.00**
C1 Water Supply (Surface Water)		samples x	$22 00	**$0.00**
D1 Groundwater (no purge or duplicate)	3	samples x	$28 00	**$84.00**
E1 Gauge Well Only		samples x	$7 00	**$0.00**
F1 Sample Below Product		samples x	$12 00	**$0.00**
G1 Passive Diffusion Bag		samples x	$26 00	**$0.00**
H1 Field Blank	6	samples x	$24 60	**$147.60**
11 Analyses-Groundwater				
A2 BTEXNM+Oxygs+1,2 DCA+Eth	60	samples x	$122 00	**$7,320.00**
AA1 Filtered Lead		samples x	$13 80	**$0.00**
B2 8260B **RUSH Analysis**		samples x	$153 60	**$0.00**
C2 Trimethyl, Butyl, and Isopropolbenzenes		samples x	$36 40	**$0.00**
D1 PAHs		samples x	$60 60	**$0.00**
E1 Lead		samples x	$16 00	**$0.00**
F1 EDB by 8011	57	samples x	$45 20	**$2,576.40**
FF1 EDB by 8011 (RUSH)		samples x	$68 20	**$0.00**
G1 8 RCRA Metals		samples x	$63 40	**$0.00**
H1 TPH (9070)		samples x	$41 00	**$0.00**
I1 pH		samples x	$5 20	**$0.00**
J1 BOD		samples x	$20 00	**$0.00**
PP Ethanol		samples x	$14 80	**$0.00**
11 Analyses-Soil				
Q1 BTEX + Napth		samples x	$64 00	**$0.00**
R1 PAH's		samples x	$64 04	**$0.00**
S1 8 RCRA Metals		samples x	$56 40	**$0.00**
U1 TPH DRO(3550)		samples x	$40 00	**$0.00**
V1 TPH GRO(5035)		samples x	$35 96	**$0.00**
W1 Grain size / hydrometer		samples x	$104 00	**$0.00**
X1 Total Organic Carbon		samples x	$30 60	**$0.00**

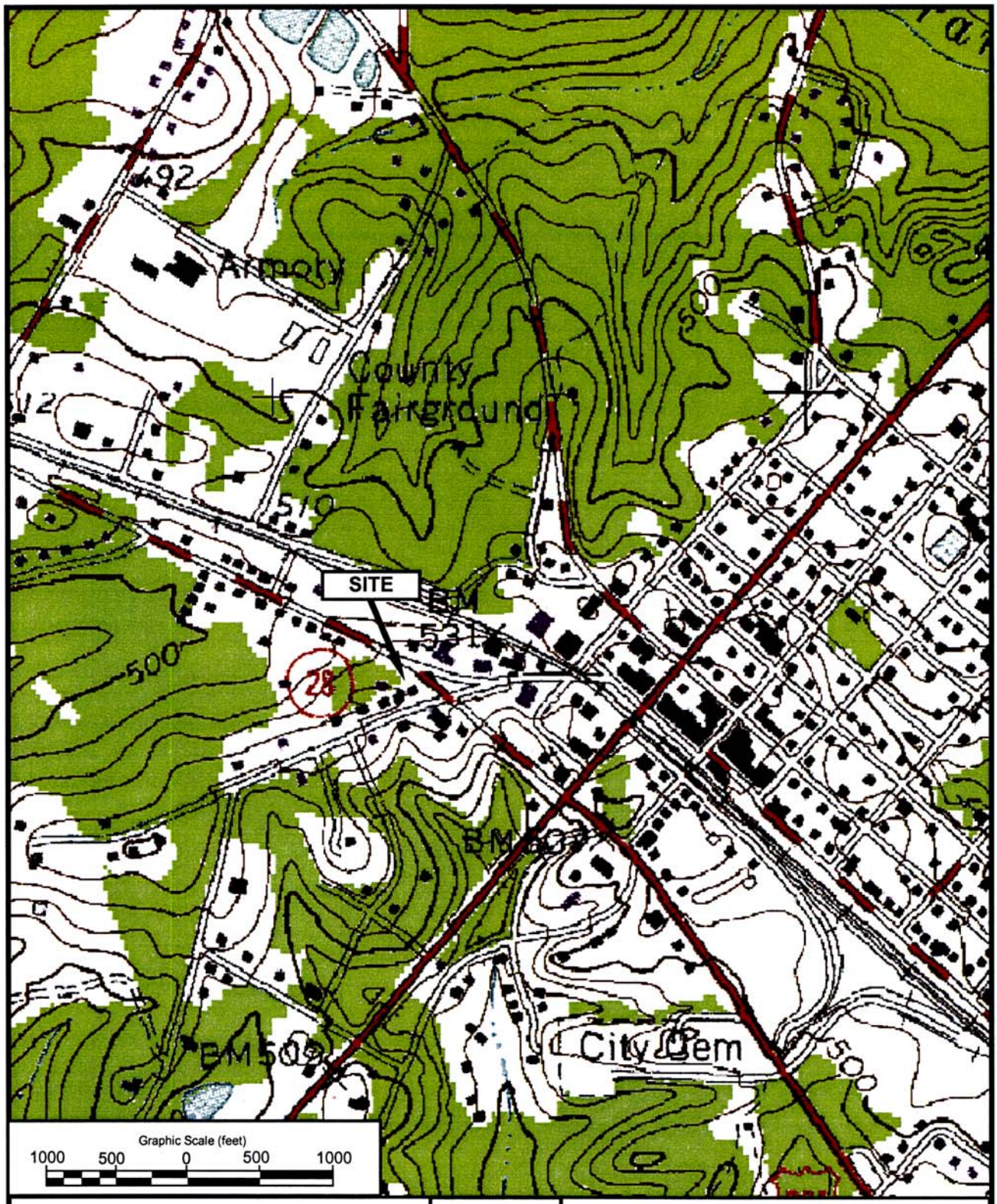
Facility Former SC-576

UST Permit # 06443 **CA#**

	ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
11	Analyses-Air				
	Y1 BTEX + Naphthalene		samples x	$247 50	**$0.00**
12	Aquifer Characterization*				
	A1 Pumping Test		hours x	$23 00	**$0.00**
	B1 Slug test		tests x	$191 00	**$0.00**
	C1 Fractured Rock		tests x	$100 00	**$0.00**
13	Free Product Recovery Rate Test*		tests x	$38 00	**$0.00**
14	Fate & Transport Modeling				
	A Mathematical Model		models x	$100 00	**$0.00**
	B Computer Model		models x	$100 00	**$0.00**
15	Risk Evaluation				
	A Tier I Risk Evaluation		x	$300 00	**$0.00**
	B Tier II Risk Evaluation		x	$100 00	**$0.00**
16 A1	Subsequent Survey*		x	$260 00	**$0.00**
17	Disposal				
	AA Wastewater	430	gallons x	$0 56	**$240.80**
	BB Free Product		gallons x	$0 50	**$0.00**
	C1 Soil (Treatment/Disposal)*		tons	$60 00	**$0.00**
	D1 Drilling Fluids *		gallons x	$0 42	**$0.00**
18	Miscellaneous Attach paid invoice receipts				
			x		**$0.00**
			x		**$0.00**
23	AFVR				
	A1 8-Hour Event*		x	$1,375 00	**$0.00**
	A2 24-Hour Event*		x	$3,825 00	**$0.00**
	A3 48-Hour Event*		x	$6,265 00	**$0.00**
	A4 96-Hour Event*		x	$12,567 00	**$0.00**
	C1 Off-Gas Treatment - 8 hour		x	$122 50	**$0.00**
	C2 Off-Gas Treatment - 24 hour		x	$241 50	**$0.00**
	C3 Off-Gas Treatment - 48 hour		x	$327 00	**$0.00**
	C4 Off-Gas Treatment - 96 hour		x	$780 00	**$0.00**
	D Site Reconaissance		x	$203 25	**$0.00**
	E1 Additional Hook-ups		x	$25 75	**$0.00**
	F Effluent Disposal		x	$0 44	**$0.00**
	G AFVR Mobilization/Demobilization		x	$391 50	**$0.00**
25	Well Repair				
	A1 Additional Copies of Report		each x	$50 00	**$0.00**
	B1 Repair 2x2 monitoring well pad		each x	$50 00	**$0.00**
	C1 Repair 4x4 monitoring well pad		each x	$88 00	**$0.00**
	D1 Replace well vault		each x	$118 00	**$0.00**
	F1 Replace well cover bolts		each x	$2 60	**$0.00**
	G Replace locking well cap & lock		each x	$15 00	**$0.00**
	H1 Replace/Repair stick-up each		each x	$134 00	**$0.00**
	I1 Convert flush-mount to stick-up		each x	$150 00	**$0.00**
	J1 Convert stick-up to flush-mount		each x	$130 00	**$0.00**
	K1 Replace missing/illegible well ID plate		each x	$12 00	**$0.00**
	Report/Project Management			(SUBTOTAL)	
	Project Coordination		each x		**$0.00**
		12%	x	**$14,244.80**	**$1,709.38**
25	**Total**				**$15,954.18**

DHHS 7664 (12 20 05)

*** The appropriate Mobilization cost can be added to this cost**



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

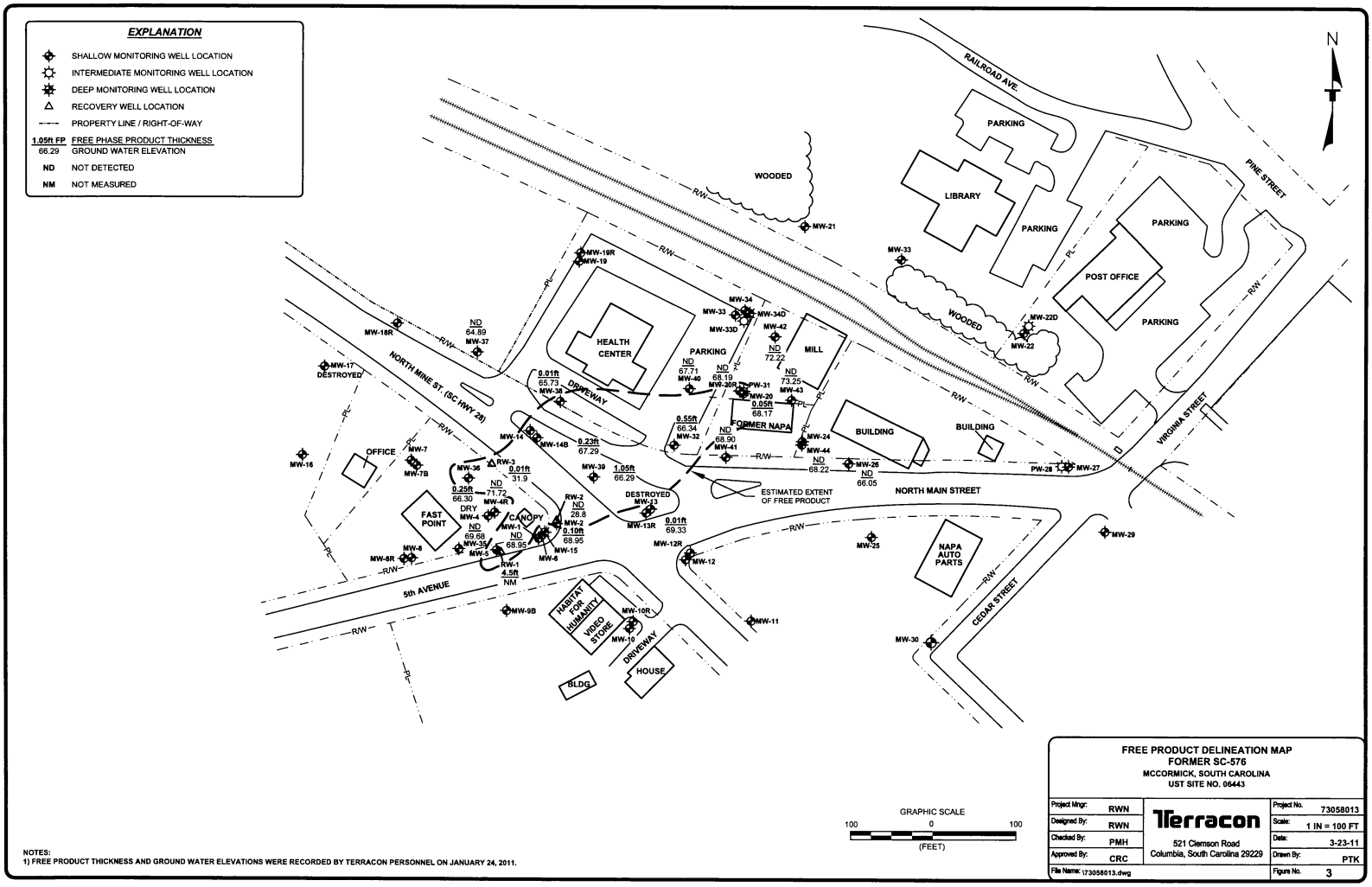
DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
ONE STOP (FORMER SC-576)
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1



NOTES:
1) FREE PRODUCT THICKNESS AND GROUND WATER ELEVATIONS WERE RECORDED BY TERRACON PERSONNEL ON JANUARY 24, 2011.

FREE PRODUCT DELINEATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	RWN	Terracon	Project No. 73058013
Designed By:	RWN		Scale: 1 IN = 100 FT
Checked By:	PMH	521 Clemson Road Columbia, South Carolina 29229	Date: 3-23-11
Approved By:	CRC		Drawn By: PTK
File Name: \73058013.dwg			Figure No. 3

D H E C
PROMOTE PROTECT PROSPER
Catherine B. Templeton, Director
Promoting and protecting the health of the public and the environment

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

OCT 16 2014

Re: **Groundwater Sampling Directive**
One Stop (Mine Street Mart), 201 N. Mine Street, McCormick, SC
UST Permit # 06443; CA# 48584
Release Reported December 13, 1989
Site Specific Work Plan received October 6, 2014
McCormick County

Dear Mr. Janson,

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) has reviewed the referenced Site Specific Work Plan submitted on your behalf by Terracon. The next appropriate scope of work at the site is a comprehensive groundwater sampling event. All work should be conducted in accordance with the UST Quality Assurance Program Plan (QAPP) Revision 2.0, and must be conducted in compliance with all applicable regulations. A copy of the Agency QAPP Revision 2.0, for the UST Management Division is available at http://www.scdhec.gov/environment/lwm/usthome/Qapp.htm.

Groundwater sampling activities at the site should begin immediately upon receipt of this letter. Cost agreement # 48584 has been approved for the amount shown on the enclosed cost agreement form for sampling all monitoring wells associated with the referenced release. Groundwater samples should be collected and analyzed for BTEX, naphthalene, MtBE, 8 oxygenates, 1,2 DCA and EDB. Analyses should be in accordance with Appendix E of the QAPP to include duplicate samples, field and trip blanks.

In accordance with the QAPP, a weekly status report of the project should be provided via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

The Monitoring Report, contractor checklist (QAPP Appendix K), and invoice are due within 60 days from the date of this letter. The report submitted at the completion of these activities should include the required information outlined in the QAPP. Please note that all applicable South Carolina certification requirements apply to the services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

Terracon can submit an invoice for direct payment from State Underground Petroleum Environmental Response Bank (SUPERB) Account for pre-approved costs. By law, the SUPERB Account cannot compensate any costs that are not pre-approved. Please note that applicable South Carolina certification requirements regarding laboratory services and report preparation must be satisfied. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

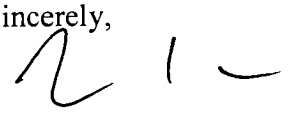
Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Agency is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Agency for the cost to be paid. The Agency reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, the Agency reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

Please note, if unnecessary dilutions are completed resulting in reporting limits of individual chemical of concern (CoC) in excess of Risk-Based Screening Levels (RBSLs), the data cannot be used. In those cases, the Division may deny payment for any non-detect analysis where the reporting limit exceeds the RBSL. The UST Management Division encourages the use of 'J' values as necessary so the appropriate action can be determined for a release.

The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. The transport and disposal must be conducted in accordance with the QAPP. If the CoC concentrations based on laboratory analysis are below RBSLs, please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence regarding this site, please reference UST Permit #06443. If you have any questions regarding this correspondence, please contact me by telephone at (803) 898-0606, by fax at (803) 898-0673, or by e-mail at bryantjc@dhec.sc.gov.

Sincerely,



John C. Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Terracon Consultants, Inc., 521 Clemson Rd., Columbia, SC 29229 (w/enc)
Technical File (with enc.)

Approved Cost Agreement 48584

Facility: 06443 MINE STREET MART

BRYANTJC

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
01 PLAN						
		A1	SITE SPECIFIC WORK PLAN	1.0000	150.00	150.00
04 MOB/DEMOB						
		B1	PERSONNEL	2.0000	423.00	846.00
10 SAMPLE COLLECTION						
		A1	GROUNDWATER (PURGE)	48.0000	60.00	2,880.00
		D1	GROUNDWATER NO PURGE/DUPLICATE	3.0000	28.00	84.00
		H1	FIELD BLANK	3.0000	24.60	73.80
11 ANALYSES						
	GW GROUNDWATER	A2	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	60.0000	122.00	7,320.00
		F1	EDB BY 8011	57.0000	45.20	2,576.40
17 DISPOSAL						
		AA	WASTEWATER	550.0000	0.56	308.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PRT	REPORT PREPARATION	0.1200	14,238.20	1,708.58
				Total Amount		15,946.78

BOARD:
Elizabeth M. Hagood
Chairman

Edwin H. Cooper, III
Vice Chairman

Steven G. Kisner
Secretary

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C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment

BOARD:
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Paul C. Aughtry, III

Glenn A. McCall

Coleman F. Buckhouse, MD

OCT 02 2007

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

Re: Corrective Action Options letter
One Stop (Former SC-576), 201 N. Mine St., McCormick, SC
UST Permit #06443
Release reported December 13, 1989
Assessment report received August 27, 2007
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced report submitted by Terracon on your behalf. The report indicates that active corrective action is necessary at the site to ensure there is no potential impact to human health or the environment.

Funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account will soon be available for implementation of an acceptable method of corrective action. The selected technology must reduce the free-phase product thickness to site-specific target levels (SSTLs) determined by the Program. A SCDHEC-certified site rehabilitation contractor as required by SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98 must perform the corrective action.

The SUPERB Site Rehabilitation and Fund Access Regulations R.61-98 require the UST owner/operator to develop and implement a reasonable, cost-effective corrective action. As the owner/operator on record, you have two options as to how to proceed with this requirement: owner/operator lead or state lead.

- If you select the owner/operator lead option, you must select a contractor to perform the corrective action. The corrective action must be performed by a SCDHEC-certified site rehabilitation contractor as required by SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98. In order to assist you in determining the clean-up technology, time frame, clean-up levels, and associated costs, the Program will prepare a technical specification package for you to use for your contractor solicitations. In addition to your solicitations, the Program will announce the request for solicitations in the South Carolina Business Opportunities, a bi-weekly state government publication. This announcement will clearly indicate that you will make the contractor selection to implement an accepted method of corrective action at a reasonable cost. The Program strongly suggests that a written contract between you and the selected contractor be developed following the

CST PROGRAM
DOCKETING # 3

completion of the solicitation process. The only parties to this contract would be you and the contractor you choose. Since the Program's only function would be to monitor the corrective action activities, the Program would not be party to your contract. **To utilize the owner/operator lead option, please sign and return the enclosed Active Corrective Action Options Form within 15 days of the date of this letter.**

- If you choose the state lead option, the Program will procure a contractor to perform corrective action on your behalf. Under this option, you will relinquish your right under R.61-91 to choose your contractor. **To utilize the state lead option, please sign and return the applicable Permission and Right-of-Entry forms within 15 days of the date of this letter.**

On all correspondence or inquiries regarding this project, please reference UST Permit #06443. If you have any questions, please contact me by phone at (803) 896-6649, by fax at (803) 896-6245, or by email at utzst@dhec.sc.gov.

Sincerely,

Sonya T. Utz, Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Permission/Right-of-Entry forms
Active Corrective Action Options form

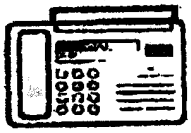
cc: Technical File (w/o encs)

SCDHEC/UST/STU/092807

UST #06443

FAX

Hugh C. Brown Insurance
PO Box 188
McCormick, SC 29835
Office 864-465-2106
Fax 864-852-2956



To: JOE GLADNEY
Fax number: 803-896-4002

From: HUGH BROWN
Fax number:

Date: 11-8-07 **Number of Pages:**

Regarding: SAHJANAND, INC + K. PATEL

Phone number for follow-up:

Comments: PLEASE SEND ANY INFO YOU HAVE ON SPILL AT THIS LOCATION (NO. 06443). CLEAN CLOSURE LETTER IF POSSIBLE.

Hugh C Brown

Letter of Concern request

UST PROGRAM
DOCKETING # 4

#06943

Storage Tank Liability

Supplemental information needed for those facilities that have an open release.

- ☐ Description of the release (when it occurred, amount of fuel lost, amount recovered, source of the release, how repaired, etc.)
- ☐ Sampling data for the site:
  - Last two rounds
  - Level they need to achieve
- ☐ Description of the remedial action taken and current status; provide engineer's report.
- ☐ Estimated time until clean closure is received from the state.
- ☐ If available we will need the contract that indicates the prior owner is taken full responsibility.

-OR-

- ☐ Clean closure letter from the state.

*Please note if we receive above information and there appears to be a downward trending, we can consider entertaining this risk. A pre-existing release endorsement will also apply.

Confirmation Report – Memory Send

Date & Time: 11-08-2007 04:00pm
Tel line : +8038966245
Machine ID : UST PROGRAM

Job number	:	192
Date & Time	:	11-08 03:54pm
To	:	918648522956
Number of pages	:	016
Start time	:	11-08 03:54pm
End time	:	11-08 04:00pm
Pages sent	:	016
Status	:	OK

Job number : 192 *** SEND SUCCESSFUL ***

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

2600 Bull Street
Columbia, SC 29201-1708

FAX MESSAGE

Date: 11-8-07
Number of Pages Including Cover Sheet: 16

Please Deliver This Fax Message

TO: HUGH BROWN
Name
HUGH C BROWN INSURANCE
Organization/Department
864 852 2956
Fax Number
864 846 5 2106
Phone Number

FROM: Sonya Utz
Bureau of Land & Waste Management
Underground Storage Tank Program

Fax Number (803) 896-6245
Regulatory Phone (803) 896-7957
Technical Phone (803) 896-6241

SUBJECT/COMMENT: UST #026443

D H E C
PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

NOV 09 2007

HUGH C BROWN
HUGH C BROWN INSURANCE
P O BOX 188
MCCORMICK SC 29835

Re: Letter of Concern
One Stop (former SC-576), 201 N. Mine St, McCormick, SC
UST#06443
Release reported December 13, 1989
McCormick County

Dear Mr. Brown:

Per your request, the Underground Storage Tank Program is providing you with a synopsis regarding the referenced facility and property.

According to Program records, One Stop (former SC-576) operates three underground storage tanks (USTs) at the facility to supply gasoline. The USTs were last inspected on August 20, 2007 and were found to be in regulatory compliance.

The Program received a report on December 13, 1989 documenting petroleum contamination in the subsurface in the vicinity of the USTs. In response to the initial report of contamination, the Program directed Crown Central Petroleum, as the owner/operator on record with the Program, to assess the extent and severity of the contamination. Assessments conducted from 1989 to 1992 confirmed and defined free-phase petroleum contamination in the groundwater at the facility. From 1992 to 1994, the Program conducted free-phase product removal to reduce the free-phase product thickness. In 1994, it was found that the dissolved plume was not defined and the site went back into assessment. Assessment activities conducted from 1994 to the present. The Program has directed Crown Central Petroluem's contractor to conduct one AFVR event at the site. The AFVR should be completed in the next three months. This petroleum contamination at this site has been defined and is ready to enter Active Corrective Action (ACA) in the near future. Once Crown Central Petroleum chooses an ACA option the site will be put for bid to South Carolina State certified contractors. I have enclosed the latest potentiometric data submitted to the Program (see enclosures).

This release of petroleum products from the USTs is qualified to receive funding under the conditions of the State Underground Petroleum Environmental Response Bank (SUPERB)

5

Act. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB account for site rehabilitation. Should cleanup costs exceed $1,000,000, Crown Central Petroleum, under state and federal law, is responsible for any additional site rehabilitation and associated costs.

In 1997, the General Assembly amended Section 80 (B) of the SUPERB Act to clarify that persons who hold "indicia of ownership" primarily to protect a security interest in property impacted by a release from a UST are exempt from the requirements to conduct site rehabilitation activities other than necessary abatement actions to eliminate any imminent threat to human health or the environment. The "indicia of ownership" exemption includes those persons who acquire title to property through foreclosure or other means necessary to protect their security interest, provided that person does not participate in the management of the UST and is not otherwise engaged in petroleum production, marketing, or refining. This applies equally to subsequent lenders who acquire the USTs and property through foreclosure in the future.

The Program is not aware of any laws or regulations that prohibit the use or development of properties where a petroleum release has occurred. In the event that the property is sold, the Program requests that the buyer coordinate with Crown Central Petroleum and the UST Program to allow continued access to the monitoring wells located on the property.

If you have any questions, please feel free to contact me by telephone at (803) 896-6649, by fax at (803) 896-6245, or by e-mail at utzst@dhec.sc.gov.

Sincerely,

Sonya T. Utz

Sonya T. Utz, Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Groundwater data tables
Site map

cc: Technical file

DHEC/UST/STU/110807

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

DEC 12 2007

Re: AFVR directive
One Stop (Former SC-576), 201 N. Mine St., McCormick, SC
UST Permit #06443;CA#31047
Release reported December 13, 1989
Assessment report received August 27, 2007
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site utilizing your own contractor. The Program has reviewed the referenced report and determined the next necessary scope of work to be two 8-hour AFVR events to remove free-phase product from monitoring well pairs MW-1/MW-2 and MW-4/MW-5. Off-gas treatment will be necessary due to the site's location in a populated area.

Cost Agreement #31047 has been approved in the amount shown on the enclosed cost agreement form for the aforementioned scope of work. The AFVR activities may proceed immediately upon receipt of this letter. The report submitted at the completion of these activities should include a narrative portion documenting site conditions, AFVR contractor and field personnel, date, starting and ending times for the events, ambient air temperature, general weather conditions, and estimated gallons of petroleum product removed. AFVR data reported must include product recovery rate and volatile air emission concentration measurements taken at 30-minute intervals during the events, and gauging data for the wells containing free phase product measured before and after the events should also be provided. Disposal manifests should be included as part of the report.

Terracon can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation.

All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

A free product recovery report and invoice are due within 90 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the final invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will

UST PROGRAM
DOCKETING # 6

be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Program is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Program for the cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Program grants pre-approval for transportation of up to 5,000 gallons of groundwater from the referenced site to a permitted treatment facility. The contaminated groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report.

On all correspondence concerning this site, please reference **UST Permit #06443 and CA #31047**. If there are any questions concerning this project, please contact me by phone at (803) 896-6398, by fax at (803) 896-6245 or by email at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Mike Hudgins, Terracon, 521 Clemson Road, Columbia, SC 29229 (w/enc)
Technical file (w/enc)

DHEC/UST/STU/111107

cost to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Program grants pre-approval for transportation of up to 5,000 gallons of groundwater from the referenced site to a permitted treatment facility. The contaminated groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report.

On all correspondence concerning this site, please reference **UST Permit #14615 and CA #30948**. If there are any questions concerning this project, please contact me by phone at (803) 896-6398, by fax at (803) 896-6245 or by email at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Laura Minor, Geological Resources, Inc., 2301 Crown Point Executive Dr, Suite F, Charlotte, NC 28227 (w/enc)
Technical file (w/enc)

DHEC/UST/STU/102907

Approved Cost Agreement 31047

Facility: 06443 ONE STOP
UTZST
PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		A	EQUIPMENT	2.0000	550.00	1,100.00
		B	PERSONNEL	2.0000	275.00	550.00
17 DISPOSAL						
		A2	WASTEWATER - PUMPING TEST	5,000.0000	0.60	3,000.00
19 RPT/PROJECT MNGT & COORDINATIO						
		PCT	PERCENT	0.1500	11,210.00	1,681.50
23 EFR						
		A	8 HOUR EVENT	2.0000	3,000.00	6,000.00
		C	OFF GAS TREATMENT	16.0000	35.00	560.00
				Total Amount		12,891.50

RECEIVED
FEB 19 2008
UNDERGROUND STORAGE
TANK PROGRAM

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY

FORMER SC-576
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

Prepared for:

South Carolina Department of Health and Environmental Control

And

Crown Central LLC

Prepared by:

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229

February 13, 2008
Terracon Project No. 73048013

UST PROGRAM
DOCKETING #

February 13, 2008

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

Mr. Joel Padgett, P.G., Hydrogeologist
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Aggressive Fluid/Vapor Recovery***
Former SC-576
201 N. Mine Street
McCormick, South Carolina
UST Permit # 06443; CA # 31047
Terracon Project No. 73048013

Dear Mr. Padgett:

On behalf of Crown Central LLC, **Terracon Consultants, Inc** is pleased to submit this report of Aggressive Fluid/Vapor Recovery for the former SC-576 Facility located at 201 North Mine Street in McCormick, South Carolina. This report summarizes the two Aggressive Fluid Vapor Recovery (AFVR) events and our findings, conclusions, and recommendations.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.

Regan Norris
Environmental Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
S.C. Registration No. 1137

Attachment

cc: Jim Janson / Crown Central LLC.

TABLE OF CONTENTS

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1.0 INTRODUCTION	1
1.1 Site Description	1
1.2 Facility History	1
2.0 AGGRESSIVE FLUID VAPOR RECOVERY	2
3.0 CONCLUSIONS AND RECOMMENDATIONS	3

FIGURES

1 Site Location Map
2 Site Map

APPENDIX

AFVR Field Data Sheets
Disposal Manifests

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed two Aggressive Fluid Vapor Recovery (AFVR) events at the One Stop (SC-576) Facility, 201 N. Mine Street, McCormick, South Carolina. This work was performed in accordance with SCDHEC Cost Proposal No. 31047 and the SUPERB Allowable Costs document dated December 12, 2007. The purpose of the AFVR event was to extract multiple phase (vapor, dissolved, and free phase) petroleum hydrocarbon compounds from the unsaturated zone, capillary fringe, and the shallow aquifer following a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

This report includes a summary of the field methods utilized along with the results of ground water elevation measurements and our conclusions and recommendations.

2.0 AGGRESSIVE FLUID VAPOR RECOVERY

Aggressive Fluid Vapor Recovery (AFVR) was utilized to extract dissolved-phase hydrocarbons from the unsaturated zone, capillary fringe, and the shallow aquifer at the site in the area of the UST system (source area). AFVR is a proven remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (vapor, dissolved, and free phase) VOCs from the subsurface. Due to site logistics with respect to the active UST system, AFVR was performed as two separate eight-hour events performed on consecutive days on monitoring wells MW-1, MW-2 (Event #1) and MW-4R and MW-5 (Event #2). Figure 2 is a site map showing monitoring well locations.

On December 9, 2007, Event #1 was performed on monitoring wells MW-1 and MW-2. Both wells being dry, therefore no measurable thickness of free product was detected before or after completion of the AFVR. Three activated carbon canisters were installed in series at the discharge of system off gas treatment. The velocity and VOC concentration of off-gas from the vacuum rig were measured before and after off gas treatment using an anemometer and a TLV Sniffer with a 10X dilution probe. Approximately 1,106 pounds of volatile organic compounds (VOCs) were removed from the subsurface, and 37.2 pounds of VOCs were emitted to the atmosphere. Approximately 10 gallons of ground water were extracted from the monitoring well and disposed by a licensed disposal contractor. The AFVR field data and disposal manifest for the extracted ground water generated are included in the Appendix.

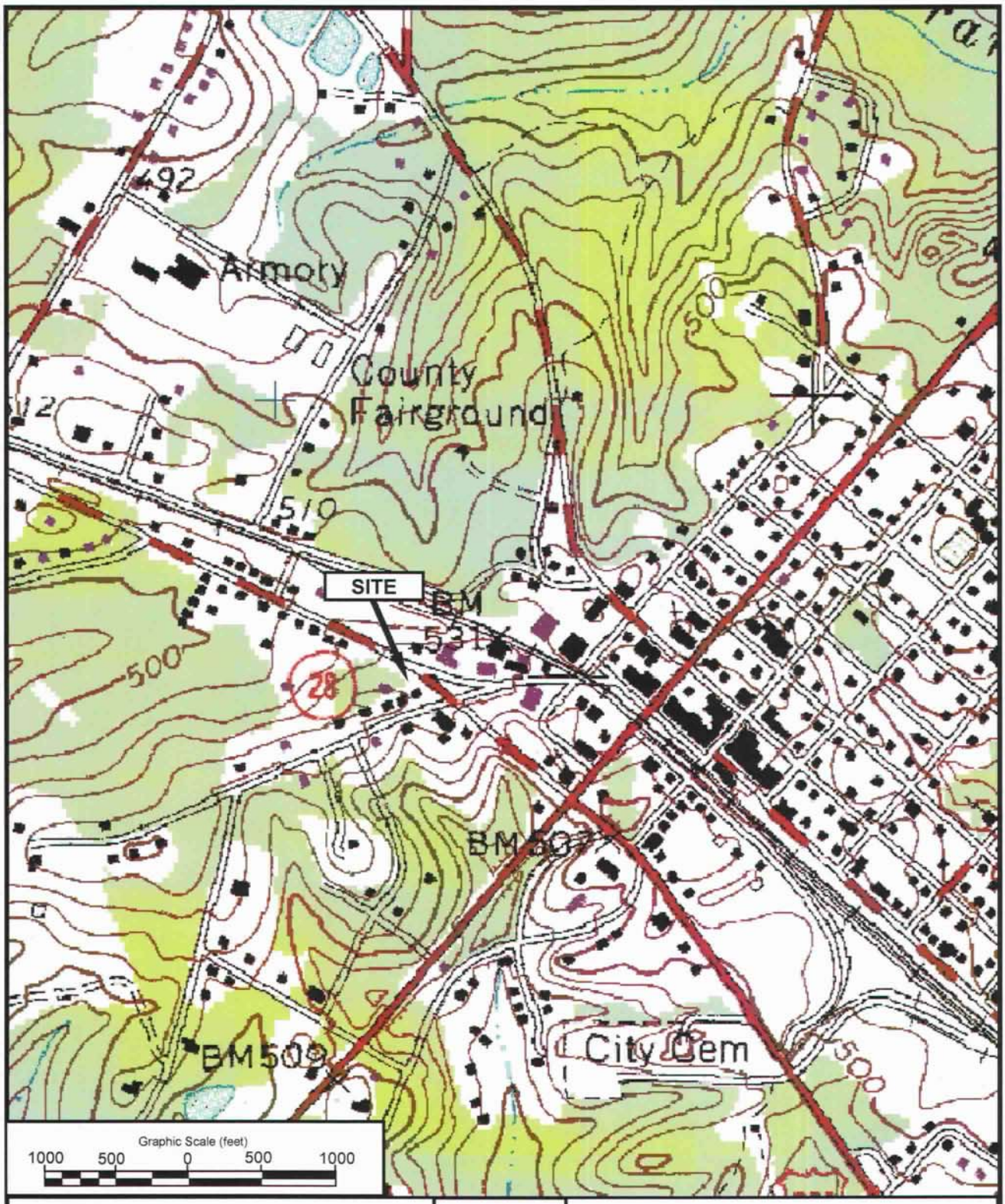
Differential pressures (vacuum) measurements recorded with a magnehelic gauge at monitoring wells MW-7B, MW-9B, MW-10, MW-13R, and MW-14B indicated that the zone of influence was irregular, with the radius ranging from approximately 95 feet (MW-9B) to approximately 155 feet (MW-10). It should be noted that free-product was detected in monitoring wells MW-9B (0.1 ft) and MW-13 R (0.29 ft), both located offsite to the south and east of the UST system, respectively.

On December 10, 2007, Event #2 was performed on monitoring wells MW-4R and MW-5. The depth to water was recorded at 29.82 feet in monitoring well MW-4R with no measurable thickness of free product. MW-5 was dry. There was no measurable reduction in concentration of VOCs provided by off gas treatment. Approximately 1,457 pounds of VOCs were removed from the subsurface and 183 pounds of VOCs emitted to the atmosphere. Approximately 5 gallons of ground water were extracted from the monitoring well and disposed by a licensed disposal contractor.

The zone of influence again was irregular, with the radius ranging from less than 75 feet (MW-2) to an intermittent maximum radius of approximately 109 feet (MW-7B). Vacuum measurements indicated a similar radius of influence compared to AFVR Event #1.

3.0 CONCLUSIONS AND RECOMMENDATIONS

Terracon recommends another AFVR event as the next scope of work to remove petroleum hydrocarbons from the area around the underground storage tank (UST) system, and to further reduce contaminant concentrations in the source area. In addition to the source area wells, AFVR ir recommended to be performed on monitoring wells MW-13R and MW-9B, due to the presence of product in these wells.



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73048013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

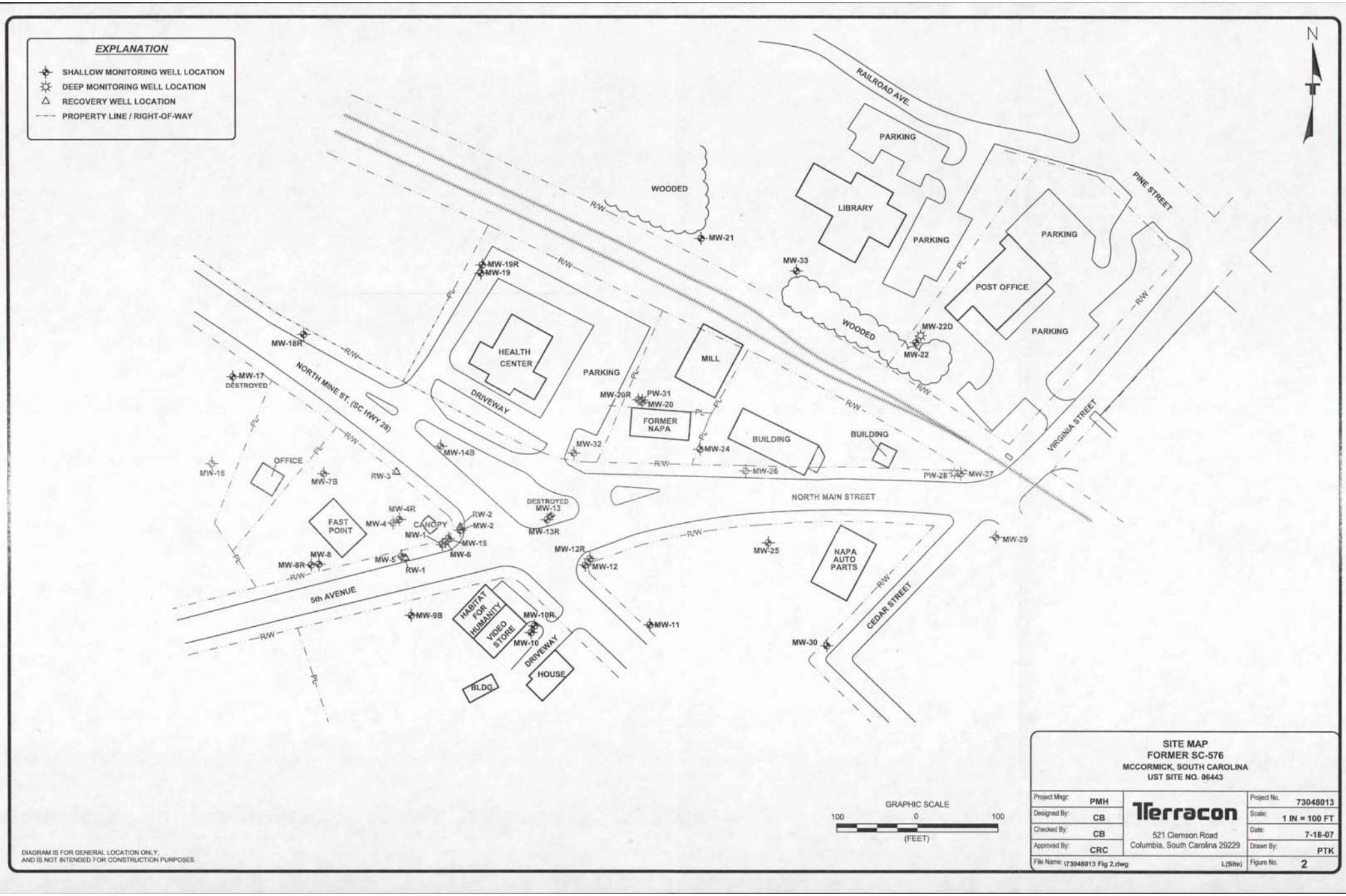


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr:	PMH	Terracon	Project No. 73048013
Designed By:	CB		Scale: 1 IN = 100 FT
Checked By:	CB	521 Clemson Road Columbia, South Carolina 29229	Date: 7-18-07
Approved By:	CRC		Drawn By: PTK
File Name: \73048013 Fig 2.dwg		L(Site)	Figure No. 2

AFVR FIELD DATA SHEET

Terracon	Site: Former SC-576	Project No.: 73048013	Date: 1/9/08	Event #: 1

System Data (prior to offgas treatment) — **Weather:** Rainy — **Temp:** 56 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	7:30	8:00	30	64,000	56,000	60,000	1,622	2,255	1,939	42.26	29.92	14.96	14.96
	8:00	8:30	30	56,000	62,000	59,000	2,255	2,706	2,481	54.07	37.65	18.82	33.78
	8:30	9:00	30	62,000	100,000	81,000	2,706	5,320	4,013	87.48	83.62	41.81	75.59
	9:00	9:30	30	100,000	100,000	100,000	5,320	5,388	5,354	116.72	137.73	68.86	144.45
	9:30	10:00	30	100,000	70,000	85,000	5,388	5,926	5,657	123.32	123.69	61.85	206.30
	10:00	10:30	60	100,000	100,000	100,000	5,926	5,824	5,875	128.08	151.13	75.56	281.87
	10:30	11:00	30	100,000	100,000	100,000	5,824	6,133	5,979	130.33	153.79	76.90	358.76
	11:00	11:30	30	100,000	100,000	100,000	6,133	7,298	6,716	146.40	172.75	86.37	445.14
	11:30	12:00	30	100,000	100,000	100,000	7,298	7,314	7,306	159.27	187.94	93.97	539.11
	12:00	12:30	30	100,000	100,000	100,000	7,314	7,399	7,357	160.37	189.24	94.62	633.72
	12:30	13:00	30	100,000	100,000	100,000	7,399	7,458	7,429	161.94	191.09	95.55	729.27
	13:00	13:30	30	100,000	100,000	100,000	7,458	7,339	7,399	161.29	190.32	95.16	824.43
	13:30	14:00	30	100,000	100,000	100,000	7,339	7,223	7,281	158.73	187.30	93.65	918.08
	14:00	14:30	30	100,000	100,000	100,000	7,223	7,381	7,302	159.18	187.84	93.92	1012.00
	14:30	15:00	30	100,000	100,000	100,000	7,381	7,268	7,325	159.67	188.42	94.21	1106.20
	15:00	15:30	30	100,000	100,000	100,000	7,268	7,418	7,343	160.08	188.89	94.45	1200.65

Total Extraction Time	8.0	hours
Total Liquid Volume	10	gallons
Total Liquid-phase Hydrocarbon	0.0	gallons
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	187.5	gallons
Total Hydrocarbon Recovery:	187.5	gallons

TOTAL lbs of VOC emissions = 1106.20

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

Free Product Thickness - MW-1
Well was dry @ 29.96 feet prior to AFVR event
Prior to AFVR - 0.00 Feet
1 hour after AFVR - 0.00 inches

Free Product Thickness - MW-2
Well was dry @ 30.43 feet prior to AFVR event
Prior to AFVR - 0.00 Feet
1 hour after AFVR - 0.00 inches

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73048013	Date: 1/9/08	Event #: 1

Offgas Data (measured at discharge of carbon drums) **Weather:** Rainy **Temp:** 56 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	7:30	8:00	30	15,000	100,000	57,500	757	3,455	2,106	45.91	31.15	15.58	15.58
	8:00	8:30	30	100,000	20,000	60,000	3,455	373	1,914	41.73	29.54	14.77	30.35
	8:30	9:00	30	20,000	26,000	23,000	373	462	418	9.10	2.47	1.24	31.58
	9:00	9:30	30	26,000	14,000	20,000	462	0	231	5.04	1.19	0.59	32.18
	9:30	10:00	30	14,000	14,000	14,000	0	0	0	0.00	0.00	0.00	32.18
	10:00	10:30	60	14,000	14,000	14,000	0	0	0	0.00	0.00	0.00	32.18
	10:30	11:00	30	14,000	23,000	18,500	0	0	0	0.00	0.00	0.00	32.18
	11:00	11:30	30	23,000	14,000	18,500	0	516	258	5.62	1.23	0.61	32.79
	11:30	12:00	30	14,000	14,000	14,000	516	533	525	11.43	1.89	0.94	33.73
	12:00	12:30	30	14,000	16,000	15,000	533	365	449	9.79	1.73	0.87	34.60
	12:30	13:00	30	16,000	14,000	15,000	365	333	349	7.61	1.35	0.67	35.27
	13:00	13:30	30	14,000	11,000	12,500	333	378	356	7.75	1.14	0.57	35.84
	13:30	14:00	30	11,000	19,000	15,000	378	183	281	6.11	1.08	0.54	36.39
	14:00	14:30	30	19,000	21,000	20,000	183	75	129	2.81	0.66	0.33	36.72
	14:30	15:00	30	21,000	18,000	19,500	75	292	184	4.00	0.92	0.46	37.18
	15:00	15:30	30	18,000	20,000	19,000	292	324	308	6.71	1.51	0.75	37.93

Total Extraction Time..... 8.0 hours

Total Liquid Volume..... 10 gallons

Total Liquid-phase Hydrocarbon..... 0.0 gallons

Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9).. 6.3 gallons

Total Hydrocarbon Recovery:..... 6.3 gallons

TOTAL lbs of VOC emissions = 37.18

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

Free Product Thickness - MW-1

Well was dry @ 29.96 feet prior to AFVR event

Prior to AFVR - 0.00 Feet

1 after AFVR - 0.00 inches

Free Product Thickness - MW-2

Well was dry @ 30.43 feet prior to AFVR event

Prior to AFVR - 0.00 Feet

1 hour after AFVR - 0.00 inches

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73048013	Date: 1/10/08	Event #: 2

System Data (prior to offgas treatment) — **Weather:** Rainy — **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4R MW-5	7:30	8:00	30	100,000	100,000	100,000	6,917	7,067	6,992	152.43	179.86	89.93	89.93
	8:00	8:30	30	100,000	100,000	100,000	7,067	7,187	7,127	155.37	183.33	91.67	181.60
	8:30	9:00	30	100,000	100,000	100,000	7,187	8,131	7,659	166.97	197.02	98.51	280.11
	9:00	9:30	30	100,000	100,000	100,000	8,131	8,147	8,139	177.43	209.37	104.68	384.79
	9:30	10:00	30	100,000	100,000	100,000	8,147	8,214	8,181	178.33	210.44	105.22	490.01
	10:00	10:30	60	100,000	100,000	100,000	8,214	8,105	8,160	177.88	209.89	104.95	594.96
	10:30	11:00	30	100,000	100,000	100,000	8,105	7,708	7,907	172.36	203.39	101.69	696.65
	11:00	11:30	30	100,000	100,000	100,000	7,708	7,888	7,798	170.00	200.60	100.30	796.95
	11:30	12:00	30	100,000	100,000	100,000	7,888	7,618	7,753	169.02	199.44	99.72	896.67
	12:00	12:30	30	100,000	100,000	100,000	7,618	7,821	7,720	168.29	198.58	99.29	995.96
	12:30	13:00	30	100,000	100,000	100,000	7,821	6,944	7,383	160.94	189.91	94.95	1090.91
	13:00	13:30	30	100,000	100,000	100,000	6,944	6,902	6,923	150.92	178.09	89.04	1179.95
	13:30	14:00	30	100,000	100,000	100,000	6,902	7,113	7,008	152.76	180.26	90.13	1270.08
	14:00	14:30	30	100,000	100,000	100,000	7,113	7,263	7,188	156.70	184.90	92.45	1362.54
	14:30	15:00	30	100,000	100,000	100,000	7,263	7,398	7,331	159.80	188.57	94.28	1456.82
	15:00	15:30	30	100,000	100,000	100,000	7,398	7,418	7,408	161.49	190.56	95.28	1552.10

Total Extraction Time	8.0	hours
Total Liquid Volume	5	gallons
Total Liquid-phase Hydrocarbon	0.0	gallons
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	246.9	gallons
Total Hydrocarbon Recovery:	246.9	gallons

TOTAL lbs of VOC emissions = 1456.82

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Free Product Thickness - MW-4R
Prior to AFVR - 0.00 Feet
1 after AFVR - 0.00 inches

Free Product Thickness - MW-5
Well was dry @ 32.75 feet prior to AFVR event
Prior to AFVR - 0.00 Feet
1 hour after AFVR - 0.00 inches

Inputs

Off Gas Stack Radius = 2 in.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73048013	Date: 1/10/08	Event #: 2

Offgas Data (measured at discharge of carbon drums) — **Weather:** Rainy — **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4R MW-5	7:30	8:00	30	100,000	100,000	100,000	844	862	853	18.60	21.94	10.97	10.97
	8:00	8:30	30	100,000	100,000	100,000	862	798	830	18.09	21.35	10.68	21.65
	8:30	9:00	30	100,000	100,000	100,000	798	592	695	15.15	17.88	8.94	30.59
	9:00	9:30	30	100,000	100,000	100,000	592	2,036	1,314	28.65	33.80	16.90	47.49
	9:30	10:00	30	100,000	100,000	100,000	2,036	1,290	1,663	36.25	42.78	21.39	68.88
	10:00	10:30	60	100,000	100,000	100,000	1,290	885	1,088	23.71	27.97	13.99	82.86
	10:30	11:00	30	100,000	100,000	100,000	885	724	805	17.54	20.69	10.35	93.21
	11:00	11:30	30	100,000	100,000	100,000	724	1,009	867	18.89	22.29	11.14	104.36
	11:30	12:00	30	100,000	100,000	100,000	1,009	953	981	21.39	25.24	12.62	116.97
	12:00	12:30	30	100,000	100,000	100,000	953	866	910	19.83	23.40	11.70	128.67
	12:30	13:00	30	100,000	100,000	100,000	866	824	845	18.42	21.74	10.87	139.54
	13:00	13:30	30	100,000	100,000	100,000	824	846	835	18.20	21.48	10.74	150.28
	13:30	14:00	30	100,000	100,000	100,000	846	762	804	17.53	20.68	10.34	160.62
	14:00	14:30	30	100,000	100,000	100,000	762	920	841	18.33	21.63	10.82	171.44
	14:30	15:00	30	100,000	100,000	100,000	920	816	868	18.92	22.33	11.16	182.60
	15:00	15:30	30	100,000	100,000	100,000	816	787	802	17.47	20.62	10.31	192.91

Total Extraction Time	8.0	hours
Total Liquid Volume	5	gallons
Total Liquid-phase Hydrocarbon	0.0	gallons
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	30.9	gallons
Total Hydrocarbon Recovery:	30.9	gallons

TOTAL lbs of VOC emissions = 182.60

Free Product Thickness - MW-4R
Prior to AFVR - 0.00 Feet
1 after AFVR - 0.00 inches

Free Product Thickness - MW-5
Well was dry @ 32.75 feet prior to AFVR event
Prior to AFVR - 0.00 Feet
1 hour after AFVR - 0.00 inches

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

Inputs

Off Gas Stack Radius = 2 in.

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone 800-535-5053

4. Waste Tracking Number 001675

5. Generator's Name and Mailing Address
SC-576
201 N. Mine St
McCormick, South Carolina 29835

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name
DIVERSIFIED RECYCLING INC.

877-682-0234

U.S. EPA ID Number
SCR000766048

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address Diversified Recycling
132 Gardners Terrace Rd West Columbia SC

U.S. EPA ID Number

Facility's Phone: 29172 SCR000768127

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	Non RCRA Non Regulated liquid	01	TT	15	4
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information

7304813

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Regan Norris

Signature: Regan As Signatory Agent For Crown Petroleum

Month 01 Day 18 Year 08

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: James Smith

Signature: James Smith

Month 1 Day 18 Year 08

Transporter 2 Printed/Typed Name

Signature

Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator)

Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Donald C Burnette

Signature

Month 1 Day 20 Year 08

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

169-BLS-C 5 11979 (Rev. 8/06)

DESIGNATED FACILITY TO GENERATOR

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MAR 11 2008

MR JIM JANSON
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

Re: Aggressive Fluid and Vapor Recovery (AFVR) directive
One Stop (Former Crown SC-576), 201 North Mine Street, McCormick, SC
UST Permit #06443;CA #31883
Release reported December 13, 1989
AFVR report received February 19, 2008
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program has reviewed the referenced report submitted on your behalf by Terracon Consultants, Inc. The report documents that the AFVR events conducted in December 2007 recovered approximately 435 gallons of free-phase product recovered as vapor. Accordingly, the Program proposes to continue AFVR events at the site. Please have your contractor conduct one event on monitoring wells MW-1 and MW-2, and one event on monitoring wells MW-4R and MW-5. Off-gas treatment will be necessary.

Cost Agreement #31883 has been approved in the amount shown on the enclosed cost agreement form for the AFVR events. AFVR activities may proceed immediately upon receipt of this letter. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. Also, all site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor. The report submitted at the completion of the events should include a narrative portion documenting site conditions, AFVR contractor and field personnel, date, starting and ending times for the events, ambient air temperature, general weather conditions, and estimated gallons of petroleum product removed. The report should also include product recovery rate, air emission measurements, and gauging data for monitoring wells MW-1, MW-2, MW-4R, MW-5, MW-9B, and MW-13R measured before and after the events. Disposal manifests should be included as part of the report.

Terracon can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

An AFVR report and invoice are due within 90 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

UST PROGRAM
DOCKETING # 8

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be preapproved by the Department for the cost to be paid. SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

The UST Program grants pre-approval for transportation of up to 5,000 gallons of petroleum-contaminated groundwater from the referenced facility to a permitted treatment facility. The contaminated groundwater must be properly stored in labeled containers and must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report

On all correspondence concerning this facility, please reference UST Permit #06443. If there are any questions concerning this project, feel free to contact me by telephone at (803) 896-6398, by fax at (803) 896-6245, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, P.G., Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management

JPP/jpp
06443.19

enc: Approved cost agreement

cc: Regan Norris, Terracon Consultants, Inc., 521 Clemson Road, Columbia, SC 29229 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 31883

Facility: 06443 ONE STOP
JASPERTA
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		A EQUIPMENT	2.0000	550.00	1,100.00
		B PERSONNEL	2.0000	275.00	550.00
17 DISPOSAL					
		A2 WASTEWATER - PUMPING TEST	1,000.0000	0.60	600.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	8,810.00	1,321.50
23 EFR					
		A 8 HOUR EVENT	2.0000	3,000.00	6,000.00
		C OFF GAS TREATMENT	16.0000	35.00	560.00
			Total Amount		10,131.50

May 13, 2008

Terracon
Consulting Engineers & Scientists

Terracon Consultants, Inc.
521 Clemson Road
Columbia, South Carolina 29229
Phone 803.741.9000
Fax 803.741.9900
www.terracon.com

RECEIVED
MAY 15 2008
UNDERGROUND STORAGE
TANK PROGRAM

Mr. Joel Padgett, P.G., Hydrogeologist
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Report of Aggressive Fluid/Vapor Recovery***
Former SC-576
201 N. Mine Street
McCormick, South Carolina
UST Permit # 06443; CA # 31883
Terracon Project No. 73058013

Dear Mr. Padgett:

On behalf of Crown Central LLC, **Terracon Consultants, Inc** is pleased to submit this report of Aggressive Fluid/Vapor Recovery for the former SC-576 Facility located at 201 North Mine Street in McCormick, South Carolina. This report summarizes the two Aggressive Fluid Vapor Recovery (AFVR) events and our findings, conclusions, and recommendations.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.

Melissa Roberts
Staff Geologist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
S.C. Registration No. 1137

Attachment

cc: Jim Janson / Crown Central LLC

UST DOCKET
9T

REPORT OF AGGRESSIVE FLUID VAPOR RECOVERY
FORMER SC-576
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA
UST PERMIT # 06443

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3.0 CONCLUSIONS AND RECOMMENDATIONS	3

FIGURES

1 Site Location Map
2 Site Map

APPENDIX

AFVR Field Data Sheets
Disposal Manifest

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed two Aggressive Fluid Vapor Recovery (AFVR) events at the One Stop (SC-576) Facility, 201 N. Mine Street, McCormick, South Carolina. This work was performed in accordance with SCDHEC Cost Proposal No. 31883 and the SUPERB Allowable Costs document dated December 12, 2007. The purpose of the AFVR events was to extract multiple phase (vapor, dissolved, and free phase) petroleum hydrocarbon compounds from the unsaturated zone, capillary fringe, and the shallow aquifer following a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site.

1.1 Site Description

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.2 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Two AVFR events were performed at this site in December 2007 to remove free-phase product from the subsurface. On December 9, 2007, Event #1 was performed on monitoring wells MW-1 and MW-2. On December 10, 2007, Event #2 was performed on monitoring

wells MW-4R and MW-5. A combined total of approximately 2,563 pounds of volatile organic compounds (VOCs) were removed from the subsurface, and a combined total of approximately 219.8 pounds of VOCs were emitted to the atmosphere.

In March 2008, the SCDHEC requested two AFVR events be performed to remove free- and dissolved-phase hydrocarbons from the subsurface. This report includes a summary of the field methods utilized along with the ground water elevation measurements, field analytical results, and our conclusions and recommendations.

2.0 AGGRESSIVE FLUID VAPOR RECOVERY

Aggressive Fluid Vapor Recovery (AFVR) was utilized to extract dissolved-phase hydrocarbons from the unsaturated zone, capillary fringe, and the shallow aquifer at the site in the area of the UST system (source area). AFVR is a proven remediation method that utilizes high vacuum pressures and flow rates to remove multiple phase (vapor, dissolved, and free phase) VOCs from the subsurface. Due to site logistics with respect to the active UST system, AFVR was performed as two separate eight-hour events performed on consecutive days on monitoring wells MW-1, MW-2 (Event #3) and MW-4R and MW-5 (Event #4). Figure 2 is a site map showing monitoring well locations.

On April 10, 2008, Event #3 was performed on monitoring wells MW-1 and MW-2. A free-product thickness of 0.3 feet was measured in monitoring well MW-2 before the AFVR. Free product was not discernable in monitoring well MW-1 prior to the AFVR event. Three activated carbon canisters were installed in series at the discharge of system off-gas. The velocity and VOC concentration of off-gas from the vacuum rig were measured before and after off gas treatment using an anemometer and a TLV Sniffer with a 10X dilution probe. Approximately 654 pounds of volatile organic compounds (VOCs) were removed from the subsurface, and approximately 47 pounds of VOCs were emitted to the atmosphere. Approximately 70 gallons of ground water were extracted from the monitoring well and disposed by a licensed disposal contractor. No free product was detected in monitoring wells MW-1 or MW-2 after the AFVR event. The AFVR field data and disposal manifest for the extracted ground water generated are included in the Appendix.

Differential pressures (vacuum) measurements recorded with a magnehelic gauge at monitoring wells MW-5, MW-7B, MW-8R, MW-9B, and MW-14B indicated that the zone of influence was irregular, with the radius ranging from approximately 54 feet (MW-5) to approximately 164 feet (MW-8R).

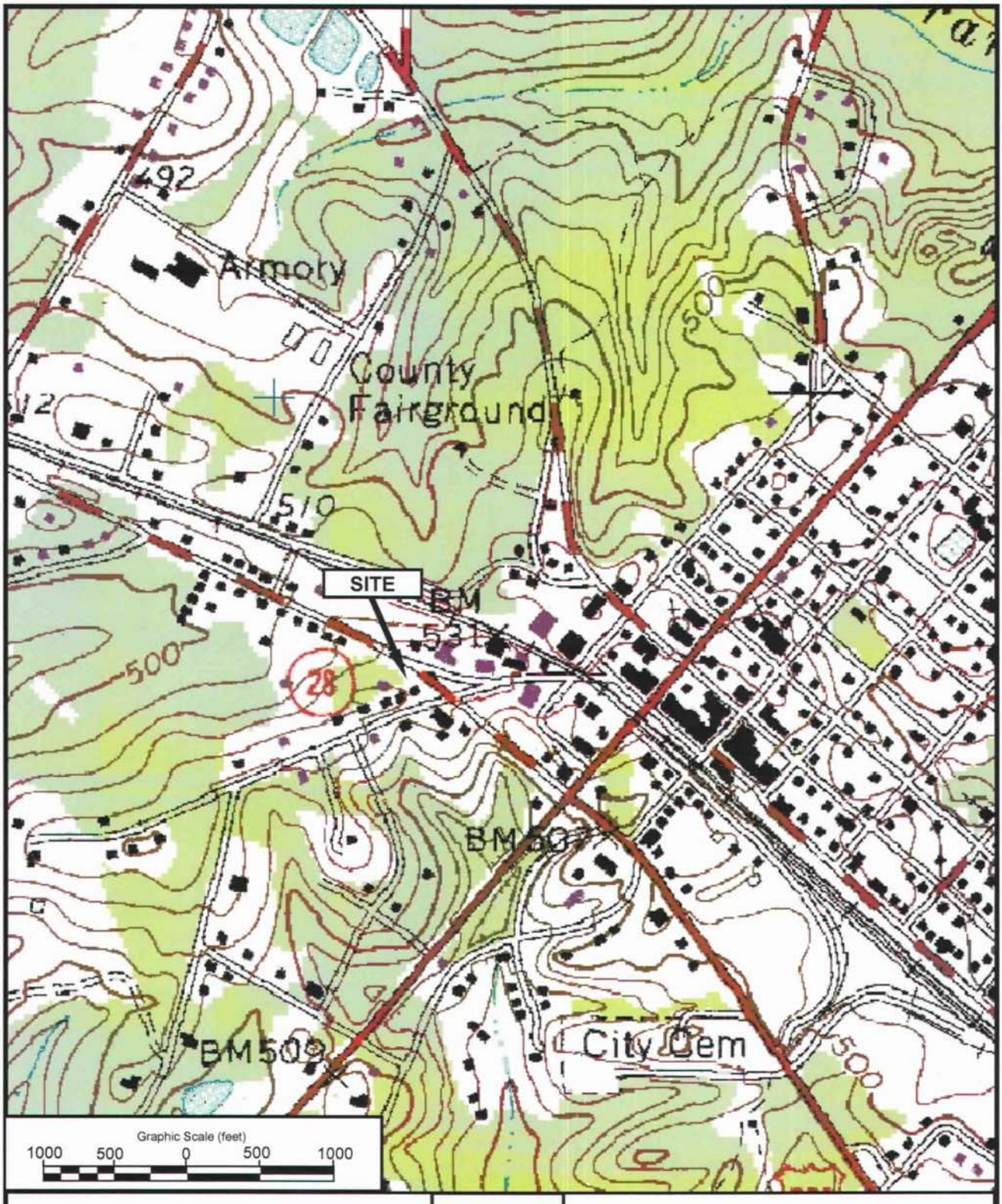
On April 11, 2008, Event #4 was performed on monitoring wells MW-4R and MW-5. The depth to water was recorded at 30.15 feet in monitoring well MW-4R with no measurable thickness of free product. The depth to water was 29.93 feet in monitoring well MW-5 with 0.15 feet of free product. Approximately 429 pounds of volatile organic compounds (VOCs)

were removed from the subsurface, and approximately 264 pounds of VOCs were emitted to the atmosphere. Approximately 505 gallons of ground water were extracted from the monitoring well and disposed by a licensed disposal contractor. No free product was detected in monitoring wells MW-4R or MW-5 after the AFVR event. The AFVR field data and disposal manifest for the extracted ground water generated are included in the Appendix.

The zone of influence again was irregular, with the radius ranging from less than 74 feet (MW-W to MW-9B) to an maximum radius of approximately 103 feet (MW-4R to MW-14B). Vacuum measurements indicated a similar radius of influence compared to AFVR Event #3.

3.0 CONCLUSIONS AND RECOMMENDATIONS

AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the four events in 2008, approximately 3,647 pounds of VOCs have been removed from the subsurface. Terracon recommends a comprehensive ground water sampling event as the next scope of work at this site. If free product is observed during the sampling event, Terracon recommends another AFVR event to remove petroleum hydrocarbons from the area around the underground storage tank (UST) system.



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

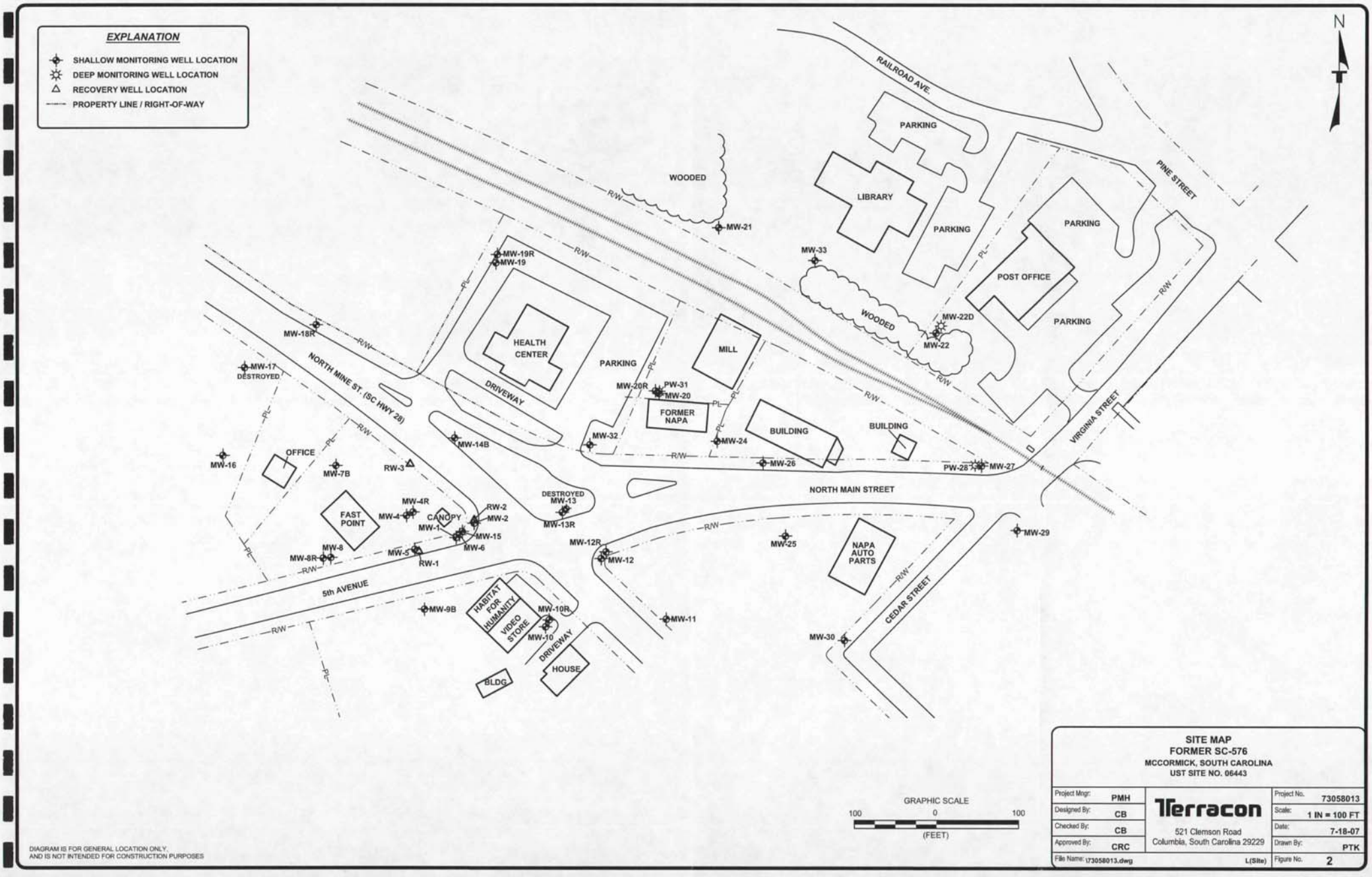


DIAGRAM IS FOR GENERAL LOCATION ONLY,
AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

SITE MAP
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

Project Mngr: PMH	Terracon	Project No.	73058013
Designed By: CB		Scale:	1 IN = 100 FT
Checked By: CB	521 Clemson Road Columbia, South Carolina 29229	Date:	7-18-07
Approved By: CRC		Drawn By:	PTK
File Name: \73058013.dwg	L(Site)	Figure No.	2

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 4/10/08	Event #: 3

System Data (prior to offgas treatment) **Weather:** Partly Cloudy **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	7:00	7:30	30	100,000	100,000	100,000	1,755	1,643	1,699	37.04	43.71	21.85	21.85
	7:30	8:00	30	100,000	100,000	100,000	1,643	1,656	1,650	35.96	42.43	21.22	43.07
	8:00	8:30	30	100,000	100,000	100,000	1,656	1,702	1,679	36.60	43.19	21.60	64.66
	8:30	9:00	30	100,000	100,000	100,000	1,702	2,935	2,319	50.54	59.64	29.82	94.48
	9:00	9:30	30	100,000	100,000	100,000	2,935	3,466	3,201	69.77	82.33	41.16	135.65
	9:30	10:00	30	100,000	100,000	100,000	3,466	3,679	3,573	77.88	91.90	45.95	181.60
	10:00	10:30	30	100,000	100,000	100,000	3,679	3,836	3,758	81.91	96.66	48.33	229.93
	10:30	11:00	30	100,000	100,000	100,000	3,836	3,748	3,792	82.67	97.55	48.77	278.70
	11:00	11:30	30	100,000	100,000	100,000	3,748	3,762	3,755	81.86	96.59	48.30	327.00
	11:30	12:00	30	100,000	100,000	100,000	3,762	3,709	3,736	81.43	96.09	48.05	375.04
	12:00	12:30	30	100,000	100,000	100,000	3,709	3,718	3,714	80.95	95.53	47.76	422.81
	12:30	13:00	30	100,000	100,000	100,000	3,718	3,740	3,729	81.29	95.92	47.96	470.77
	13:00	13:30	30	100,000	100,000	100,000	3,740	3,468	3,604	78.57	92.71	46.35	517.12
	13:30	14:00	30	100,000	100,000	100,000	3,468	3,515	3,492	76.11	89.82	44.91	562.03
	14:00	14:30	30	100,000	100,000	100,000	3,515	3,709	3,612	78.74	92.92	46.46	608.49
	14:30	15:00	30	100,000	100,000	100,000	3,709	3,421	3,565	77.72	91.71	45.85	654.34

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**70**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**110.9**	**gallons**
Total Hydrocarbon Recovery:	**110.9**	**gallons**

TOTAL lbs of VOC emissions = 654.34

Free Product Thickness - MW-1
Prior to AFVR - 0.00 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-2
Prior to AFVR - 0.30 Feet
After AFVR - 0.00 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 4/10/08	Event #: 3

Offgas Data (measured at discharge of carbon drums) **Weather:** Partly Cloudy **Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-1 MW-2	7:00	7:30	30	14,000	14,000	14,000	277	235	256	5.58	0.92	0.46	0.46
	7:30	8:00	30	14,000	14,000	14,000	235	236	236	5.13	0.85	0.42	0.89
	8:00	8:30	30	14,000	17,000	15,500	236	304	270	5.89	1.08	0.54	1.42
	8:30	9:00	30	17,000	18,000	17,500	304	276	290	6.32	1.31	0.65	2.08
	9:00	9:30	30	18,000	100,000	59,000	276	355	316	6.88	4.79	2.39	4.47
	9:30	10:00	60	100,000	100,000	100,000	355	289	322	7.02	8.28	4.14	8.61
	10:00	10:30	30	100,000	100,000	100,000	289	292	291	6.33	7.47	3.74	12.35
	10:30	11:00	30	100,000	100,000	100,000	292	274	283	6.17	7.28	3.64	15.99
	11:00	11:30	30	100,000	100,000	100,000	274	279	277	6.03	7.11	3.56	19.54
	11:30	12:00	30	100,000	100,000	100,000	279	281	280	6.10	7.20	3.60	23.15
	12:00	12:30	30	100,000	100,000	100,000	281	285	283	6.17	7.28	3.64	26.79
	12:30	13:00	30	100,000	100,000	100,000	285	296	291	6.33	7.47	3.74	30.52
	13:00	13:30	30	100,000	100,000	100,000	296	252	274	5.97	7.05	3.52	34.05
	13:30	14:00	30	100,000	100,000	100,000	252	259	256	5.57	6.57	3.29	37.33
	14:00	14:30	30	100,000	100,000	100,000	259	383	321	7.00	8.26	4.13	41.46
	14:30	15:00	30	100,000	100,000	100,000	383	532	458	9.97	11.77	5.88	47.35

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**70**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**8.0**	**gallons**
Total Hydrocarbon Recovery:	**8.0**	**gallons**

TOTAL lbs of VOC emissions = 47.35

Free Product Thickness - MW-1
Prior to AFVR - 0.00 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-2
Prior to AFVR - 0.30 Feet
After AFVR - 0.00 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 3 Date: 4-10-08

Well No.	MW-5	MW-7B	MW-8R	MW-9B	MW-14B
Distance to Nearest Pumped Well	54 ft.	170 ft.	164 ft.	95 ft.	105 ft.
Time	Vacuum (inches of water)				
7:30	2.0	0	0.05	0	0
8:00	2.0	0	0.05	0	0
8:30	2.0	0	0.05	0	0
9:00	2.0	0	0.05	0	0
9:30	2.0	0	0.1	0	0.25
10:00	2.0	0	0.1	0	0
10:30	2.0	0	0.1	0	0
11:00	2.0	0	0.12	0	0
11:30	2.0	0	0.15	0	0
12:00	2.0	0	0.1	0	0
12:30	2.0	0	0.05	0	0
13:00	2.0	0	0	0	0
13:30	2.0	0	0	0	0
14:00	2.0	0	0	0	0
14:30	2.0	0	0	0	0
15:00	2.0	0	0	0	0

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 4/11/08	Event #: 4
System Data (prior to offgas treatment)			Weather: Partly Cloudy	Temp: 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4R MW-5	6:00	6:30	30	100,000	100,000	100,000	1,755	1,809	1,782	38.85	45.84	22.92	22.92
	6:30	7:00	30	100,000	100,000	100,000	1,809	1,956	1,883	41.04	48.43	24.21	47.13
	7:00	7:30	30	100,000	100,000	100,000	1,956	1,879	1,918	41.80	49.33	24.66	71.80
	7:30	8:00	30	100,000	100,000	100,000	1,879	1,803	1,841	40.13	47.36	23.68	95.47
	8:00	8:30	30	100,000	100,000	100,000	1,803	1,873	1,838	40.07	47.28	23.64	119.11
	8:30	9:00	30	100,000	100,000	100,000	1,873	1,950	1,912	41.67	49.17	24.59	143.70
	9:00	9:30	30	100,000	100,000	100,000	1,950	2,005	1,978	43.11	50.87	25.43	169.14
	9:30	10:00	30	100,000	100,000	100,000	2,005	2,067	2,036	44.38	52.37	26.19	195.32
	10:00	10:30	30	100,000	100,000	100,000	2,067	2,155	2,111	46.02	54.30	27.15	222.47
	10:30	11:00	30	100,000	100,000	100,000	2,155	2,092	2,124	46.29	54.62	27.31	249.79
	11:00	11:30	30	100,000	100,000	100,000	2,092	2,244	2,168	47.26	55.77	27.88	277.67
	11:30	12:00	30	100,000	100,000	100,000	2,244	2,301	2,273	49.54	58.46	29.23	306.90
	12:00	12:30	30	100,000	100,000	100,000	2,301	2,360	2,331	50.80	59.95	29.97	336.88
	12:30	13:00	30	100,000	100,000	100,000	2,360	2,388	2,374	51.75	61.07	30.53	367.41
	13:00	13:30	30	100,000	100,000	100,000	2,388	2,407	2,398	52.27	61.67	30.84	398.25
	13:30	14:00	30	100,000	100,000	100,000	2,407	2,417	2,412	52.58	62.05	31.02	429.27

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**505**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**72.8**	**gallons**
Total Hydrocarbon Recovery:	**72.8**	**gallons**

TOTAL lbs of VOC emissions = 429.27

Free Product Thickness - MW-4R
Prior to AFVR - 0.00 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-5
Prior to AFVR - 0.15 Feet
After AFVR - 0.00 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

AFVR FIELD DATA SHEET

Terracon	Site: SC-576	Project No.: 73058013	Date: 4/11/08	Event #: 4
Offgas Data (measured at discharge of carbon drums)			**Weather:** Partly Cloudy	**Temp:** 55 ^{0}F

	Start Time hh:mm	End Time hh:mm	Time Interval (min)	VOC Concentrations			Off-Gas Velocity (FPM)			Total Flow (CFM)	VOC Emissions		
				Initial (PPM)	Ending (PPM)	Average (PPM)	Initial (FPM)	Ending (FPM)	Average (FPM)		Rate (lbs/hr)	Total (lbs)	Cumulative Total (lbs)
MW-4R MW-5	6:00	6:30	30	100,000	100,000	100,000	1,168	1,188	1,178	25.68	30.30	15.15	15.15
	6:30	7:00	30	100,000	100,000	100,000	1,188	1,125	1,157	25.21	29.75	14.87	30.03
	7:00	7:30	30	100,000	100,000	100,000	1,125	1,309	1,217	26.53	31.31	15.65	45.68
	7:30	8:00	30	100,000	100,000	100,000	1,309	1,276	1,293	28.18	33.25	16.62	62.30
	8:00	8:30	30	100,000	100,000	100,000	1,276	1,387	1,332	29.03	34.25	17.13	79.43
	8:30	9:00	30	100,000	100,000	100,000	1,387	1,490	1,439	31.36	37.00	18.50	97.93
	9:00	9:30	30	100,000	100,000	100,000	1,490	1,125	1,308	28.50	33.63	16.82	114.75
	9:30	10:00	30	100,000	100,000	100,000	1,125	1,042	1,084	23.62	27.87	13.94	128.68
	10:00	10:30	30	100,000	100,000	100,000	1,042	1,178	1,110	24.20	28.55	14.28	142.96
	10:30	11:00	30	100,000	100,000	100,000	1,178	1,307	1,243	27.09	31.96	15.98	158.94
	11:00	11:30	30	100,000	100,000	100,000	1,307	1,315	1,311	28.58	33.72	16.86	175.80
	11:30	12:00	30	100,000	100,000	100,000	1,315	1,366	1,341	29.22	34.48	17.24	193.05
	12:00	12:30	30	100,000	100,000	100,000	1,366	1,312	1,339	29.19	34.44	17.22	210.27
	12:30	13:00	30	100,000	100,000	100,000	1,312	1,389	1,351	29.44	34.74	17.37	227.64
	13:00	13:30	30	100,000	100,000	100,000	1,389	1,402	1,396	30.42	35.90	17.95	245.59
	13:30	14:00	30	100,000	100,000	100,000	1,402	1,429	1,416	30.86	36.41	18.21	263.79

Total Extraction Time	**8.0**	**hours**
Total Liquid Volume	**505**	**gallons**
Total Liquid-phase Hydrocarbon	**0.0**	**gallons**
Total Vapor-phase Hydrocarbon (tot lbs ÷ 5.9)	**44.7**	**gallons**
Total Hydrocarbon Recovery:	**44.7**	**gallons**

TOTAL lbs of VOC emissions = 263.79

Free Product Thickness - MW-4R
Prior to AFVR - 0.00 Feet
After AFVR - 0.00 Feet

Free Product Thickness - MW-5
Prior to AFVR - 0.15 Feet
After AFVR - 0.00 Feet

Notes:
1. VOC concentrations measured with an Intrinsically Safe TLV (Threshold-Limit Value) sniffer.
2. Off-gas velocity measured with a Dwyer Instruments Series 471 Thermo-Anemometer.
3. Off-gas stack radius = 2 in.
4. CFM (cubic feet per minute) = FPM X crossectional area of stack (0.089 sq.feet).
5. lbs/hr = CFM * PPM * 0.0000118
6. Empty boxes indicate measurements which were not recorded.

VACUUM RADIUS OF INFLUENCE

SC-576
201 N. Mine Street
UST Permit # 06443
Terracon Project No. 73058013
Event # 4 Date: 4-11-08

Well No.	MW-2	MW-7B	MW-8R	MW-9B	MW-14B
Distance to Nearest Pumped Well	75 ft.	109 ft.	112 ft.	74 ft.	103 ft.
Time	Vacuum (inches of water)				
6:30	2.0	0	0	0	0
7:00	2.0	0	0.05	0	0.05
7:30	2.0	0	0.05	0	0.05
8:00	2.0	0	0.15	0	0.05
8:30	2.0	0	0.55	0	0.10
9:00	2.0	0	0.75	0	0.15
9:30	2.0	0	0.80	0	0.15
10:00	2.0	0	1.0	0	0.15
10:30	2.0	0	1.15	0	0.15
11:00	2.0	0	1.20	0	0.15
11:30	2.0	0	1.20	0	0.15
12:00	2.0	0	1.20	0	0.15
12:30	2.0	0	1.25	0	0.15
13:00	2.0	0	1.25	0	0.15
13:30	2.0	0	1.30	0	0.15
14:00	2.0	0	1.30	0	0.15

Notes: 1. Measurements recorded in inches of water.
2. Vacuum radius of influence is denoted as negative pressure.
3. NM = Measurements were not recorded for this time interval.

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone 800-535-5053	4. Waste Tracking Number 001763

5. Generator's Name and Mailing Address SC - 576
201 N. Mine St.
McCormick, S.C.

Generator's Site Address (if different than mailing address)
Job # 06443

Generator's Phone:

6. Transporter 1 Company Name
DIVERSIFIED RECYCLING INC. 877-682-0234 U.S. EPA ID Number SCR000766048

7. Transporter 2 Company Name U.S. EPA ID Number

8. Designated Facility Name and Site Address DIVERSIFIED Recycling
132 GARDNERS TERRACE Rd West Columbia SC 29172 U.S. EPA ID Number SCR000768127

Facility's Phone: 803 493 5271

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1. NON RCRA NON Regulated liquid	01	TT	575	G
2.				
3.				
4.				

13. Special Handling Instructions and Additional Information

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name: Roger Norris
Signature: As signatory Ayant Sec Crown Pet. Month 4 Day 25 Year 08

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Richard D. Farr
Signature: Richard D. Farr Month 04 Day 25 Year 08

Transporter 2 Printed/Typed Name Signature Month Day Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name Signature Month Day Year

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

LETTER OF TRANSMITTAL

UST
FEB 03 2015
PROGRAM

Terracon
521 Clemson Rd.
Columbia, SC 29229
803-741-9000 / 803-741-9900 fax

TO Mr. John C. Bryant

SCDHEC
Bureau of Land and Waste Management
UST Program
2600 Bull St.
Columbia, SC 29201

DATE 1/29/15	JOB NO. 73058013
RE: Former SC-576, McCormick, SC UST Site No. 06443	
Report Assessment Report	

WE ARE SENDING YOU **X** Attached ☐ Under separate cover via _____ the following items:

COPIES	DATE	DESCRIPTION
1	1/29/15	Assessment Report – One Stop (Former SC-576) (CD)

UST
28 Rch
DOCKETING

THESE ARE TRANSMITTED as checked below:

☐ For approval
☐ For your use
☐ As requested
☐ For review and comment
☐ Approved as submitted
☐ Approved as noted
☐ Returned for corrections
☐ Resubmit ___ copies for approval
☐ Submit ___ copies for distribution
☐ Return ___ corrected prints

REMARKS:

Enclosed is the assessment report for the above referenced site. Please feel free to call me if you have any questions.

COPY TO: _____

SIGNED: **Mike Hudgins**

If enclosures are not as noted, kindly notify us at once.

Ground Water Assessment Report

ONE STOP (FORMER SC-576)
201 N. MINE STREET
McCORMICK, SOUTH CAROLINA

UST PERMIT # 06443

January 29, 2015
Terracon Project No. 73058013

Prepared for:
Crown Central LLC
P.O. Box 1168
Baltimore, Maryland 21203

Prepared by:
Terracon Consultants, Inc.
Columbia, South Carolina

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

Terracon

January 29, 2015

Mr. John Bryant
South Carolina Department of Health
and Environmental Control
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: ***Ground Water Assessment Report***
One Stop (Former SC-576)
201 N. Mine Street, McCormick, South Carolina
UST Permit # 06443; CA # 48584
Terracon Project No. 73058013

Dear Mr. Bryant:

On behalf of Crown Central LLC, Terracon Consultants, Inc is pleased to submit this Ground Water Assessment Report for the former SC-576 site located in McCormick, South Carolina.

If you have any questions regarding the contents of this report, or if you need additional information, please contact us at (803) 741-9000.

Sincerely,

Terracon Consultants, Inc.
UST Contractor Certification No. 246

P. Michael Hudgins

P. Michael Hudgins, P.G.
Senior Hydrogeologist

Attachments

cc: Annie Smith-Jones / Crown Central, LLC

GROUND WATER ASSESSMENT REPORT

One Stop (Former SC-576)
201 North Mine Street
McCormick, South Carolina
Terracon Project No. 73058013

SECTION		PAGE NO.
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1.1	Facility Information	1
1.2	Site Description	1
1.3	Facility History	2
2.0	GROUND WATER SAMPLING AND ANALYSES	2
3.0	ASSESSMENT RESULTS	4
4.0	CONCLUSIONS AND RECOMMENDATIONS	5

FIGURES

1 Site Location Map
2 Site Map
4 COC Concentration Map
5 Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
5A Potentiometric Surface Map of the Intermediate Portion of the Shallow Aquifer

TABLES

2 Ground Water Elevation Data
3 Ground Water Analytical Data - Petroleum Compounds
3A Ground Water Analytical Data - Oxygenate Compounds

APPENDICES

B Ground Water Sampling Logs and Laboratory Analytical Report
G Disposal Manifests
K SCDHEC QAPP Contractors Checklist

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) has completed a comprehensive ground water sampling at the One Stop (former SC-576) site located at 201 North Mine Street, McCormick, South Carolina. The purpose of this assessment was to determine the current ground water quality conditions from a reported underground storage tank (UST) system release at the site. The work was performed in accordance with the South Carolina Department of Health and Environmental Control (SCDHEC) cost agreement #48584 dated October 16, 2014, Annual Contractor Quality Assurance Plan (ACQAP) approved February 13, 2014, and the Terracon Site Specific Work Plan (SSWP) dated October 6, 2014. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Facility Information

UST Permit #: **06443**
Facility Name: One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina

Property Owner: Mahesh Patel
2811 Reidville Road
Spartanburg, SC 29301
(864) 205-8777 mobile

1.2 Site Description

The site currently operates as the Fast Point convenience store and gas station. The site consists of a retail convenience store and an underground storage tank (UST) system consisting of three 8,000-gallon USTs (one diesel, two gasoline), distribution lines, and fuel dispenser islands. A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map. A site map showing the facility layout is included as Figure 2.

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east.

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.3 Facility History

Previous assessments at this site have identified petroleum hydrocarbons in free phase and dissolved phases in ground water. The dissolved plume has been reported to extend downgradient from the site approximately 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 200 feet of the source area. Further assessments have been conducted in order to delineate the horizontal extent of the contaminated groundwater plume.

Eleven AVFR events were performed at this site from December 2007 to October 2009 to remove free-phase product from the subsurface. AFVR has proven to be a successful remediation strategy at the former SC-576 facility. In the 11 events performed as part of this scope of work, approximately 8,200 pounds of VOCs have been removed from the subsurface. Free product thicknesses has been removed or has decreased in three of the AFVR/monitoring wells (MW-1, MW-4, and MW-32), has remained relatively the same in three wells (MW-2, MW-20/20R), and has increased in one well (MW-5). This increase may be the result of mobilizing product toward the well with the AFVR events. Terracon recommended additional AFVR events to remove petroleum hydrocarbons from the area around the UST system (MW-5), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program.

In December 2010, ten shallow monitoring wells were installed to further define the extent of free product in the upper portion of the shallow aquifer. Based on the results from this assessment Terracon suggested that additional AFVR events be performed at the UST system (MW-5, RW-4), and from monitoring wells MW-13 and MW-14, adding these wells to the AFVR extraction well program.

In January 2012, the SCDHEC requested four 8-hour AFVR events in the vicinity of former UST basin, in the SCDOT median near MW-13R, MW-14R, and in the area of the former Napa store at MW-39. AFVR extraction data indicates total VOC removal ranged from 16 to 134 pounds per hour (lbs/hr) throughout the four events. Approximately 356.8 gallons (1,988.8 pounds) of free product were removed from the subsurface for the four events.

On October 16, 2014, the SCDHEC requested a comprehensive sampling event for sampling all monitoring wells associated with this release. This report includes a summary of the field methods utilized along with the results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

2.0 GROUND WATER SAMPLING AND ANALYSES

Ground water sampling was conducted on November 3 - 5, 2014. November 3, water levels were measured in the monitoring wells using an electric water level indicator and dual–phase interface probe. Water level measurements were converted to elevations relative to

previously-surveyed top of well casing (TOC) elevations. Free-phase petroleum product was detected in eight of the forty five monitoring wells measured. A summary of the water level and product thickness data is presented on Table 2. Potentiometric surface maps of the upper and lower portions of the shallow aquifer are included as Figures 5 and 5A, respectively.

The ground water monitoring sampling event is summarized below:

- Eight wells had measurable thicknesses of free product and were not sampled (MW-1, MW-2, MW-14B, MW-20, MW-20R, MW-32, MW-36 and MW-39);
- Eleven wells were dry or had insufficient water to sample (MW-4, MW-4R, MW-5, MW-7, MW-7B, MW-10, MW-11, MW-12, MW-16, MW-18R and MW-33);
- Five wells have historically been reported as destroyed during the course of the project (MW-13, MW-17, MW-18, MW-19, and MW-25);
- Two wells were unable to be accessed for this sampling event (MW-8 and MW-8R);
- Grab samples were collected from the remaining 27 wells.

Shallow monitoring wells were purged, as it has been more than one year since the monitoring well network has last been sampled. All monitoring wells were purged with disposable polyethylene bailers dedicated to each well prior to sample collection. Specific conductance, pH, and temperature were measured with a YSI 55 meter, and Dissolved Oxygen was recorded using a YSI 65 meter during purging. Both meters were calibrated in the field on the day of sampling in accordance with the manufacturer's operations manual for the instruments. The field parameters were recorded on Groundwater Sampling Logs, included in Appendix B. Purging of the wells was considered complete after a minimum of three well volumes were purged, and when the pH, specific conductivity, temperature, and turbidity stabilized. Ground Water Sampling logs and Equipment Calibration logs are included in Appendix B. Purge water was contained within poly totes and disposed by Regulatory Solutions, Gaston, South Carolina. The disposal manifest is included in Appendix G.

Samples were placed in an iced cooler and delivered along with chain of custody documentation to Access Analytical, Inc. in Irmo, South Carolina for analysis of the following parameters:

Analysis	Method
Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) Methyl-tert-butyl-ether (MTBE) Naphthalene 1,2-dichloroethane (1,2-DCA) 8 Oxygenates	EPA Method 8260B
Ethylene Dibromide (EDB)	EPA Method 8011

Ground water analytical results are summarized in Table 3, Petroleum and Related Compounds, and Table 3A, Petroleum Additives (Oxygenates). A copy of the laboratory analytical report is included in Appendix B.

A trip blank, three field blanks, and two field duplicates (MW-38 Dup and MW-40 Dup) were submitted in accordance with the QAPP. All QA/QC quality objectives were met.

3.0 ASSESSMENT RESULTS

Ground water occurs within the shallow aquifer under unconfined conditions at depths ranging from approximately 15 feet to 35 feet across the study area. Inspection of Table 2 indicates the ground water elevations, in general, are between two to five feet higher than the elevations recorded during the previous ground water sampling event (January 2011). Potentiometric surface maps of the upper and lower portions of the shallow aquifer are included as Figures 5 and 5A, respectively. Inspection of Figure 5 indicates shallow groundwater potentiometric surface highs on the west of the site, and to the east in the vicinity of the mill and library, producing a relatively flat rise in the water table that tapers down to the north and to the southeast. Figure 5A indicates that ground water flow in the lower portion of the aquifer is towards the north, northwest and the east.

Free product was detected in monitoring wells at product thicknesses ranging from 0.01 feet in monitoring well MW-14B, to 2.10 feet in monitoring well MW-2. Additional observations include:

- Free product has reappeared at MW-1 for the first time since January 2011;
- Monitoring well MW-2 has the greatest measured free product in the well since May 2003;
- Monitoring well MW-14B has the lowest detected free product thickness of all the wells measured during this sampling event;
- MW-20 and MW-20R have very similar measured thicknesses of free product, although they are located in the upper and intermediate zones, respectively, of the shallow aquifer;
- Monitoring wells MW-32 MW-36 and MW-39 has shown some historical decreases in product thickness;
- Petroleum hydrocarbon compounds as BTEX, MTBE, and naphthalene were detected above RBSLs in monitoring wells MW-6, MW-13R, PW-31, MW-38, MW-40, MW-41 and MW-42;
- EDB was detected in wells MW-13R, PW-31, MW-35 and MW-41;
- 1,2-DCA was detected in wells MW-6, PW-31, MW-35, MW-40, MW-41 and MW-42.

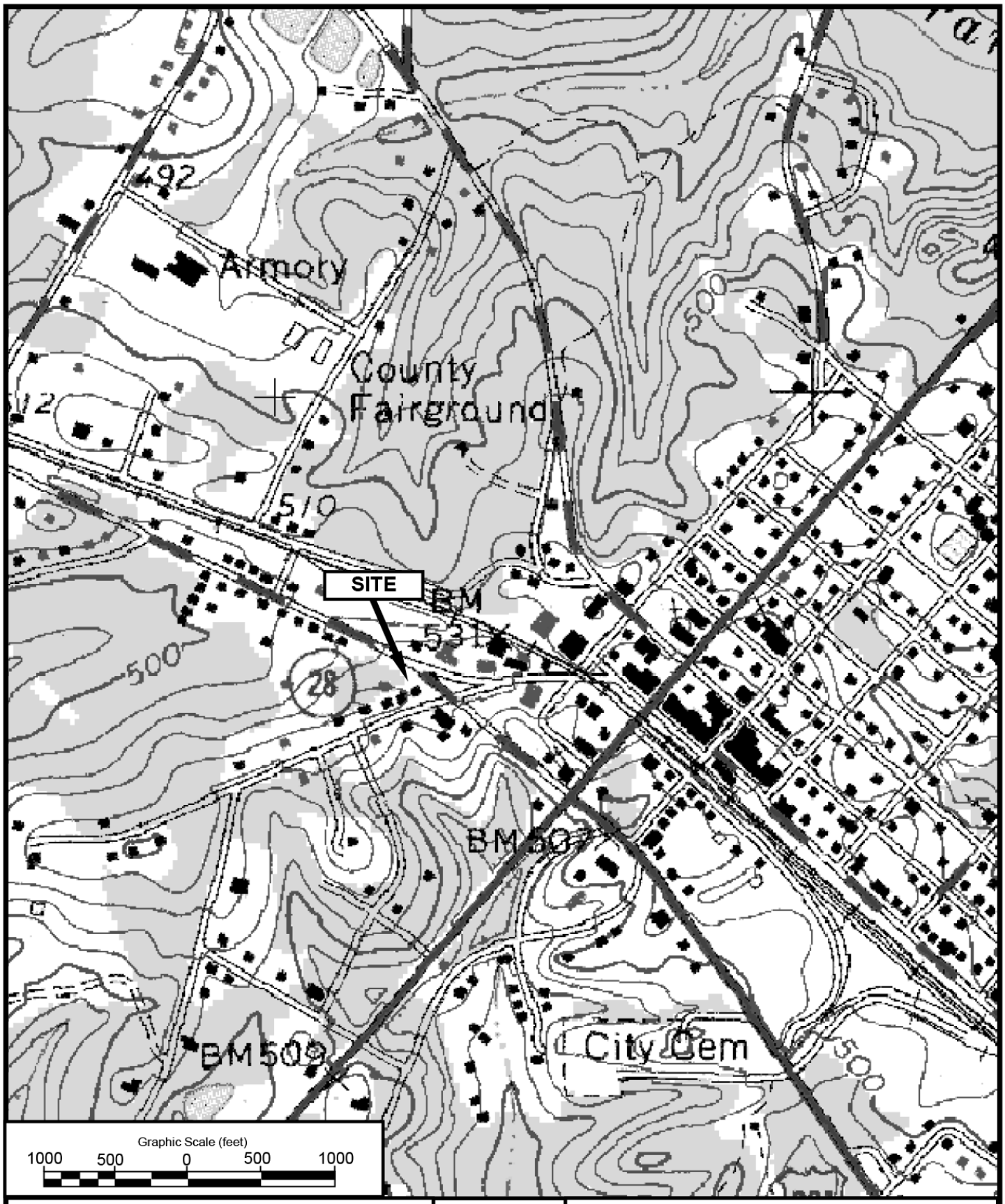
A COC concentration map is included as Figure 4. Inspection of Figure 4 indicates free product likely extends from upgradient of MW-1 to MW-20, comprising a plume which is approximately 400 feet long and from 40 to 160 feet wide, and between 2.1 to 0.1 feet in thickness. The zone of RBSL exceedances extends up to 490 feet northeast and 430 feet east of the source area (MW-1 vicinity).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties has been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former UST system. Terracon recommends free product removal by Aggressive Fluid Vapor Recovery (AFVR) at eight monitoring wells. Considering the separation distances between these wells, Terracon recommends separate AFVR events on monitoring wells MW-1/MW-2/MW-36 (Event 1), MW-14B/MW-39 (Event 2), MW-32 (Event 3), and MW-20/MW-20R (Event 4). Terracon also recommends that future AFVR events be 48 to 96 hours in length, to maximize the effectiveness of a given event.

FIGURES

Figure 1 – Site Location Map
Figure 2 – Site Map
Figure 4 – COC Concentration Map
Figure 5 – Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
Figure 5A - Potentiometric Surface Map of the Intermediate Portion of the Shallow Aquifer



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

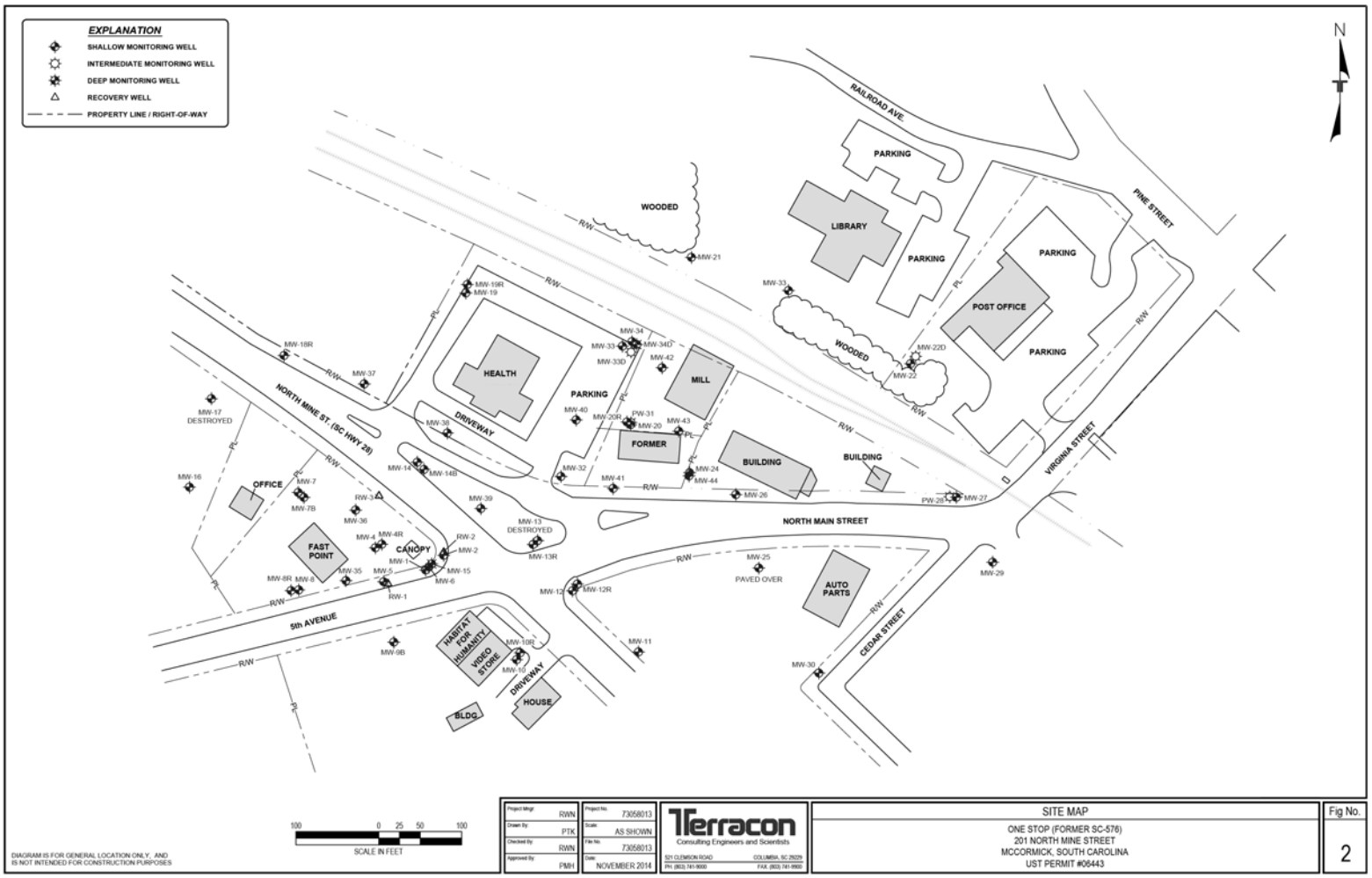
DATE: 1987
SCALE: 1 INCH = 1000 FEET
PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
ONE STOP (FORMER SC-576)
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1



Project Mngr:	RWN
Drawn By:	PTK
Checked By:	RWN
Approved By:	PMH
Project No.	73058013
Scale:	AS SHOWN
File No.	73058013
Date:	NOVEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH: (803) 741-9000 FAX: (803) 741-9900

SITE MAP

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 2

NOTES:
1) GROUND WATER SAMPLES COLLECTED ON NOVEMBER 13-15, 2014.
2) ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (ug/L)
3) CONCENTRATIONS IN BOLD EXCEED RBSLs OR ALs
4) J - INDICATES ESTIMATED VALUE

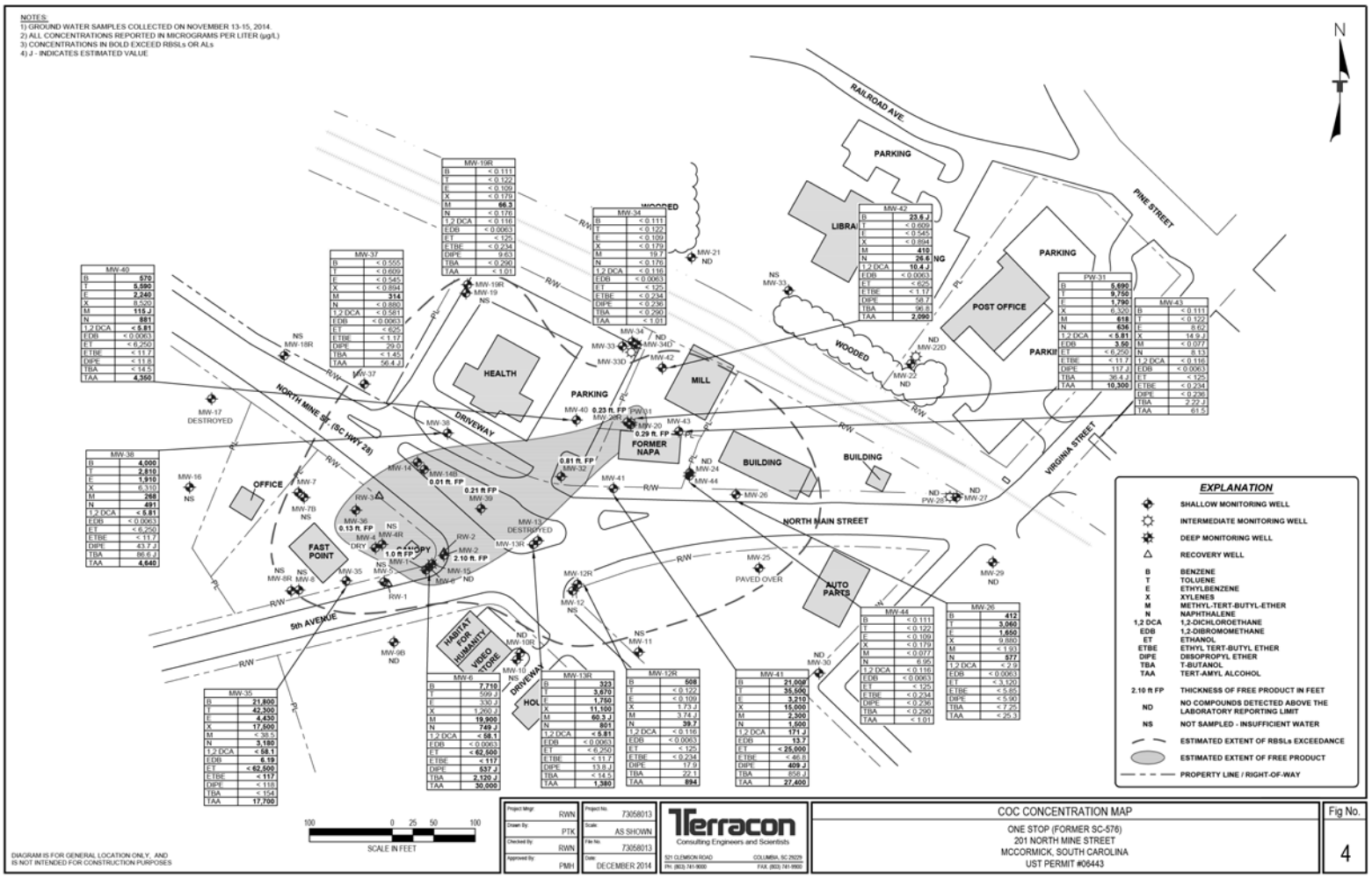


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

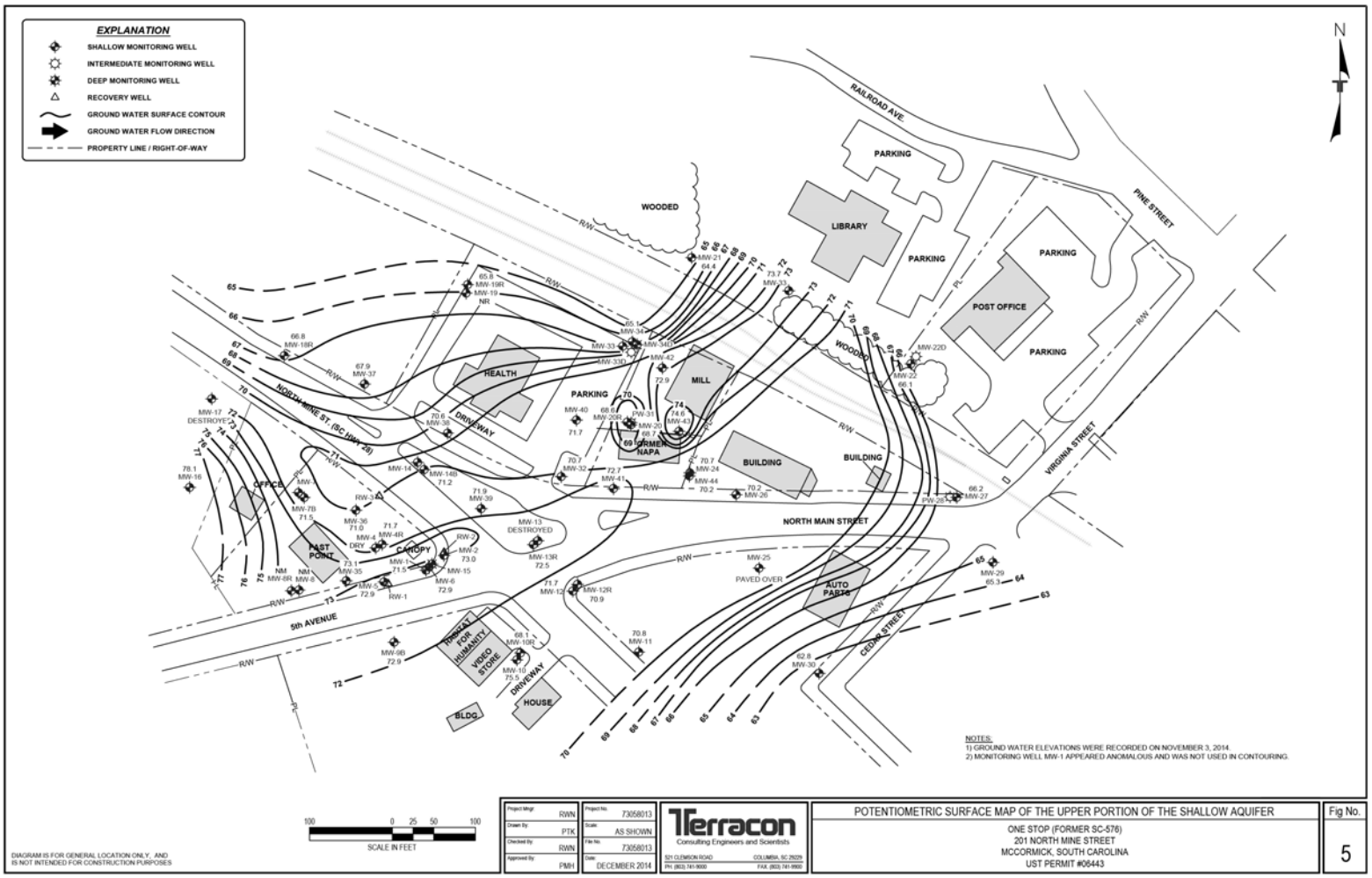
Project Mngr:	RWN
Drawn By:	PTK
Checked By:	RWN
Approved By:	PMH
Project No.	73058013
Scale:	AS SHOWN
File No.	73058013
Date:	DECEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH: (803) 741-9000 FAX: (803) 741-9960

COC CONCENTRATION MAP

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 4



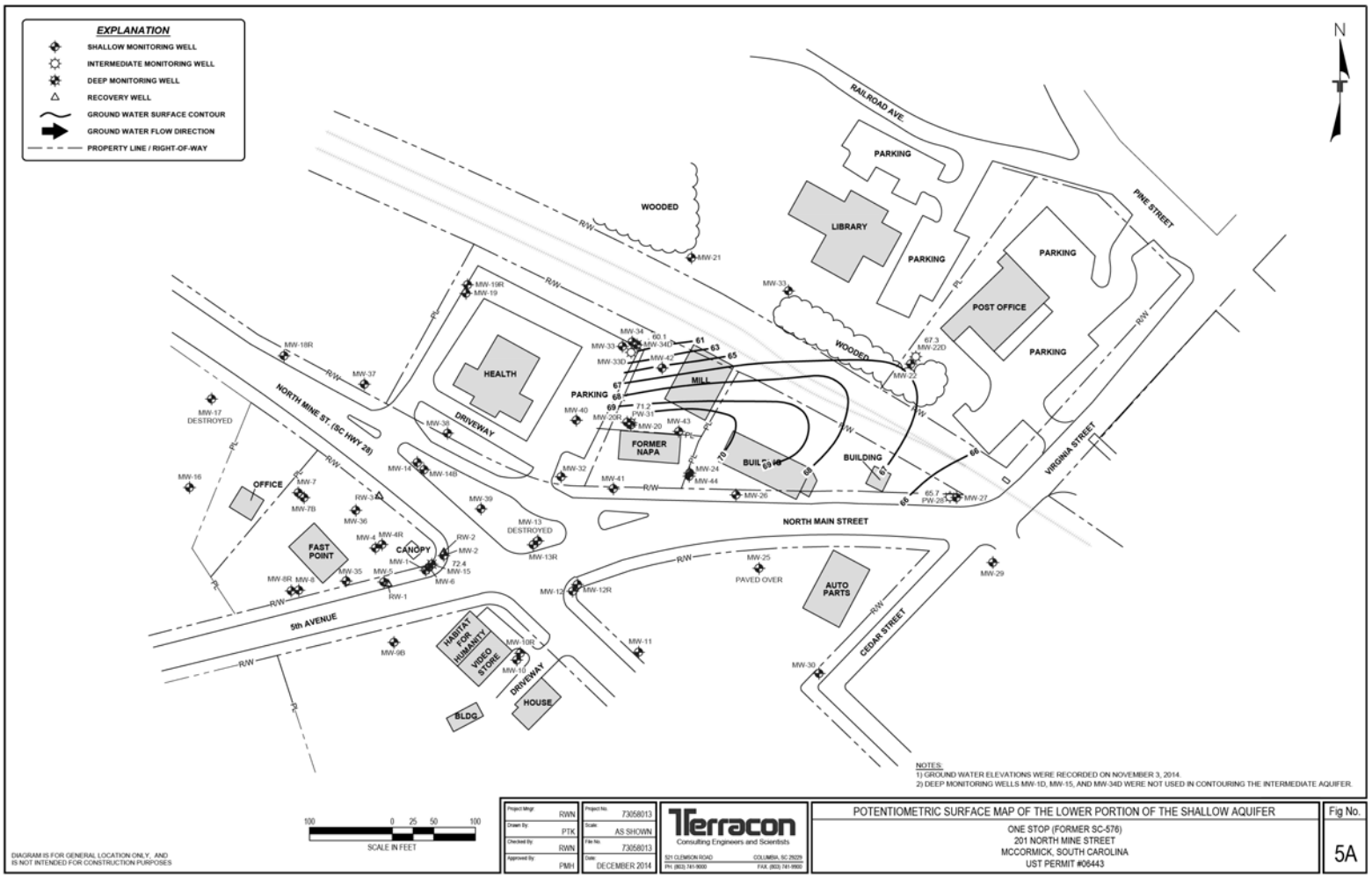
Project Mngr:	RWN
Drawn By:	PTK
Checked By:	RWN
Approved By:	PMH
Project No.	73058013
Scale:	AS SHOWN
File No.	73058013
Date:	DECEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH: (803) 741-9000 FAX: (803) 741-9900

POTENTIOMETRIC SURFACE MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 5



NOTES:
1) GROUND WATER ELEVATIONS WERE RECORDED ON NOVEMBER 3, 2014.
2) DEEP MONITORING WELLS MW-1D, MW-15, AND MW-34D WERE NOT USED IN CONTOURING THE INTERMEDIATE AQUIFER.

Project Mngr:	RWN
Drawn By:	PTK
Checked By:	RWN
Approved By:	PMH
Project No.	73058013
Scale:	AS SHOWN
File No.	73058013
Date:	DECEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH: (803) 741-9000 FAX: (803) 741-9900

POTENTIOMETRIC SURFACE MAP OF THE LOWER PORTION OF THE SHALLOW AQUIFER

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 5A

TABLES

Table 2 – Ground Water Elevation Data
Table 3 – Ground Water Analytical Data – Petroleum Compounds
Table 3A – Ground Water Analytical Data – Oxygenate Compounds

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NC
	1/6/09			DRY			
	1/24/11			ND	18.92	ND	81.11
	11/3/14			27.50	28.5	**1.0**	71.53
MW-2	10/11/96	20.5 -30.5	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			27.10	28.10	**1.00**	71.99
	1/6/09			DRY			
	1/24/11			30.34	30.44	**0.10**	68.95
	11/3/14			25.90	28	**2.10**	72.95
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			DRY			
	11/3/14			DRY			

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
	1/6/09			ND	29.85	ND	71.71
	1/24/11			ND	29.84	ND	71.72
	11/3/14			ND	29.88	ND	71.68
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			
	5/28/03			21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	29.30	ND	72.86
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86
	6/17/08			ND	19.11	ND	81.34
	1/6/09			ND	33.33	ND	67.12
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.60	ND	72.85

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NM	NM	NM	NM
	5/28/03			ND	18.00	ND	83.43
	12/20/04			DRY			
	6/05/07			ND	28.71	ND	72.72
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	29.93	ND	71.50
MW-8	10/11/96	10-20	103.85	DRY			
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			NM	NM	NM	NM
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
	6/17/08			ND	30.75	ND	73.14
	1/6/09			ND	36.24	ND	67.65
	1/24/11			NM	NM	NM	NM
	11/3/14			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			DRY			
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
	6/17/08			NM	26.65	ND	72.34
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.11	ND	72.88
MW-10	10/11/96	8-18	93.53	DRY			
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	18.08	ND	75.45
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
	6/17/08			ND	24.18	ND	69.13
	1/6/09			ND	26.97	ND	66.34
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	25.20	ND	68.11

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY			
	6/05/07			ND	15.18	ND	70.62
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	15.03	ND	70.77
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	23.25	ND	71.70
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
	6/17/08			ND	25.40	ND	69.96
	1/6/09			ND	29.09	ND	66.27
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	24.45	ND	70.91

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	**0.41**	77.87
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			WELL DESTROYED			
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	71.99
	1/6/09			31.23	31.77	**0.54**	66.56
	1/24/11			29.00	29.01	**0.01**	69.33
	11/3/14			ND	25.83	ND	72.50
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	69.94
	1/6/09			35.70	35.87	**0.17**	64.87
	1/24/11			33.40	33.63	**0.23**	67.29
	11/3/14			29.50	29.51	**0.01**	71.24

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58
	6/17/08			ND	28.20	ND	71.88
	1/6/09			ND	33.03	ND	67.05
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.69	ND	72.39
MW-16	10/11/96	13-23.5	100.57	DRY			
	9/19/01			ND	22.47	ND	78.10
	9/18/02			DRY			
	5/28/03			ND	17.84	ND	82.73
	12/20/04			DRY			
	6/17/08			ND	22.85	ND	77.72
	1/6/09			ND	22.93	ND	77.64
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	22.46	ND	78.11
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL DESTROYED					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL DESTROYED					

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
	6/17/08			ND	30.55	ND	68.2
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	31.83	ND	66.92
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY			
	6/17/08			WELL CASING BENT; BAILER OBSTRUCTED			
	1/6/09			WELL CASING BENT; BAILER OBSTRUCTED			
	1/24/11			WELL CASING BENT; BAILER OBSTRUCTED			
	11/3/14			WELL CASING BENT; BAILER OBSTRUCTED			
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
	6/17/08			ND	26.96	ND	67.11
	1/6/09			ND	31.19	ND	62.88
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	28.26	ND	65.81

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33
	6/06/07			ND	28.75	ND	70.15
	6/17/08			29.80	30.53	**0.73**	67.80
	1/6/09			32.21	32.50	**0.29**	66.40
	1/24/11			30.64	30.69	**0.05**	68.17
	11/3/14			29.71	30.00	**0.29**	68.67
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			29.69	29.94	**0.25**	68.25
	1/6/09			31.78	31.80	**0.02**	66.56
	1/24/11			ND	30.19	ND	68.19
	11/3/14			29.42	29.65	**0.23**	68.55
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
	6/17/08			ND	31.66	ND	65.88
	1/6/09			ND	34.50	ND	63.04
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	33.10	ND	64.44

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NM	NM	NM	NM
	6/05/07			ND	33.00	ND	67.87
	6/17/08			ND	33.98	ND	66.89
	1/6/09			ND	33.50	ND	67.37
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	34.77	ND	66.10
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
	6/17/08			ND	31.42	ND	67.02
	1/6/09			ND	35.45	ND	62.99
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	31.13	ND	67.31
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
	6/17/08			ND	27.38	ND	69.79
	1/6/09			ND	30.61	ND	66.56
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.49	ND	70.68

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97
	6/17/08			ND	27.55	ND	67.42
	1/6/09			ND	29.18	ND	65.79
	1/24/11			NM	NM	NM	NM
	11/3/14			PAVED OVER			
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			DRY			
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
	6/17/08			ND	27.51	ND	68.85
	1/6/09			ND	29.98	ND	66.38
	1/24/11			ND	30.31	ND	66.05
	11/3/14			ND	26.15	ND	70.21
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
	6/17/08			ND	26.63	ND	66.71
	1/6/09			ND	28.27	ND	65.07
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.10	ND	66.24

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
	6/17/08			ND	27.00	ND	66.19
	1/6/09			ND	30.67	ND	62.52
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.54	ND	65.65
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
	6/17/08			ND	26.38	ND	65.73
	1/6/09			ND	27.74	ND	64.37
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.83	ND	65.28
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07			ND	19.31	ND	65.05
	6/17/08			ND	20.18	ND	64.18
	1/6/09			ND	20.09	ND	64.27
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	21.52	ND	62.84
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
	6/17/08			ND	29.63	ND	68.50
	1/6/09			ND	31.83	ND	66.30
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.90	ND	71.23

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			24.97	27.22	**2.25**	68.76
	1/6/09			31.11	33.11	**2.00**	64.62
	1/24/11			30.41	30.96	**0.55**	66.34
	11/3/14			25.64	26.45	**0.81**	70.65
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81
	6/17/08			ND	21.29	ND	73.33
	1/6/09			ND	21.39	ND	73.23
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	20.93	ND	73.69
MW-34	1/11/10	19-34	95.61	NM	NM	NM	NM
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	30.48	ND	65.13
MW-34D	1/11/10	55-60	95.71	ND	26.10	ND	69.61
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	35.66	ND	60.05
MW-35	1/24/11	25-40	102.67	ND	32.99	ND	69.68
	11/3/14			ND	29.53	ND	73.14
MW-36	1/24/11	25-40	101.03	34.29	34.54	**0.25**	66.30
	11/3/14			29.82	29.95	**0.13**	70.98
MW-37	1/24/11	26-41	98.29	ND	33.40	ND	64.89
	11/3/14			ND	30.64	ND	67.65
MW-38	1/24/11	28-43	99.19	33.44	33.45	**0.01**	65.73
	11/3/14			ND	28.62	ND	70.57
MW-39	1/24/11	25-40	100.71	32.55	33.60	**1.05**	66.29
	11/3/14			28.65	28.86	**0.21**	71.85
MW-40	1/24/11	25-40	95.79	ND	28.08	ND	67.71
	11/3/14			ND	24.12	ND	71.67
MW-41	1/24/11	20-35	98.48	ND	29.58	ND	68.90

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
	11/3/14			ND	25.76	ND	72.72
MW-42	1/24/11	19-34	98.89	ND	26.67	ND	72.22
	11/3/14			ND	26.00	ND	72.89
MW-43	1/24/11	25-40	101.13	ND	27.88	ND	73.25
	11/3/14			ND	26.55	ND	74.58
MW-44	1/24/11	20-35	97.01	ND	28.79	ND	68.22
	11/3/14			ND	26.79	ND	70.22

Notes:

1) Ground Water elevation corrected for free product using the following formula:
GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) bgs - below ground surface
5) btoc - below top of casing

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-1	10/11/96	**1.03 ft FREE PRODUCT**							
	9/19/01	**0.61 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**3.81 ft FREE PRODUCT**							
	12/20/04	**1.20 ft FREE PRODUCT**							
	6/5/07	**2.35 ft FREE PRODUCT**							
	6/17/08	**> 3 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	**1.00 ft FREE PRODUCT**							
MW-2	10/11/96	**2.53 ft FREE PRODUCT**							
	9/19/01	**1.43 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**5.89 ft FREE PRODUCT**							
	12/20/04	**1.44 ft FREE PRODUCT**							
	6/5/07	**1.98 ft FREE PRODUCT**							
	6/17/08	**1.00 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	**2.10 ft FREE PRODUCT**							
MW-4	10/11/96	**0.84 ft FREE PRODUCT**							
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							
	11/3/14	DRY							

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-4R	9/18/02	DRY							
	5/28/03	**1.33 ft FREE PRODUCT**							
	12/20/04	NOT SAMPLED							
	6/5/07	**2.09 ft FREE PRODUCT**							
	6/17/08	DRY							
	1/8/09	**8,840**	**11,800**	651	7,220	**6,080**	**1,480**	NA	NA
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-5	5/28/03	**0.83 ft FREE PRODUCT**							
	12/20/04	**1.01 ft FREE PRODUCT**							
	6/5/07	**0.98 ft FREE PRODUCT**							
	6/17/08	**0.90 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	**249**	NA	BDL
	9/18/02	**15,200**	684	291	2,278	**13,500**	**356**	NA	**1.5**
	5/28/03	**11,400**	213	136	1,641	**13,200**	**385**	NA	**1.8**
	12/21/04	**13,000**	300	320	1900	**15,000**	**400**	NA	**1.2**
	6/05/07	**13,500**	<200	<200	<600	**17,500**	**<1000**	**<1000**	<0.01
	6/19/08	**6,760**	< 100	< 100	< 300	**15,100**	**< 500**	**< 500**	NA
	1/7/09	**18,000**	291	293	535 J	**24,000**	**967 J**	NA	< 0.0035
	11/5/14	**7,710**	559 J	330 J	1,260 J	**19,900**	**749 J**	**< 58.1**	< 0.0063

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-7B	10/11/96	**35**	94	43	174	BDL	18	NA	BDL
	8/20/98	**31**	15	41	141	BDI	**41**	NA	BDL
	9/19/01	NOT SAMPLED							
	9/18/02	NOT SAMPLED							
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	NA	BDL
	12/20/04	DRY							
	6/05/07	4.9	9.4	1.9	10.4	4.7	<5	<5	<0.01
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-8	10/11/96	DRY							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	06/05/07	DRY							
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	UNABLE TO ACCESS WELL							
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<1	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	UNABLE TO ACCESS WELL							

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GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	NA	BDL
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	**0.11**
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	4.2	12.6	2.03	9.39	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	DRY							
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-10	10/11/96	DRY							
	9/19/01	DRY							
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	DRY							
	6/06/07	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-10R	6/07/07	3.28	4.1	<1	3.6	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	NA	BDL
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	NA	BDL
	9/19/01	NOT SAMPLED							
	9/18/02	NOT SAMPLED							
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	NOT SAMPLED							
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	11.1	NA	**0.18**
	5/28/03	**178**	BDL	BDL	1.7	BDL	19.2	NA	**0.14**
	12/20/04	**230**	BDL	BDL	BDL	BDL	21	NA	**1.1**
	6/06/07	**332**	<10	<10	<30	<10	**<50**	**<50**	<0.010
	6/18/08	**322**	< 5.00	< 5.00	< 15.0	< 5.00	**38.9**	**< 25.0**	NA
	1/7/09	**751**	< 0.378	< 0.326	< 0.917	< 0.385	**52.5**	NA	< 0.0035
	11/4/14	**508**	< 0.122	< 0.109	1.73 J	3.74 J	**39.7**	< 0.116	< 0.0063

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Petroleum Compounds

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UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-13	10/11/96	**0.41 ft FREE PRODUCT**							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL DESTROYED							
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**456**	NA	**3.6**
	5/28/03	**0.30 ft FREE PRODUCT**							
	12/20/04	**0.20 ft FREE PRODUCT**							
	6/05/07	**0.08 ft FREE PRODUCT**							
	6/18/08	**12,100**	**5,120**	**2,370**	**11,400**	**1,450**	**1,250**	**<500**	NA
	1/7/09	**0.54 ft FREE PRODUCT**							
	11/4/14	**323**	**3,670**	**1,750**	**11,100**	**60.3 J**	**801**	**<5.81**	< 0.0063
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	NA	BDL
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**403**	NA	**42.4**
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**1,040**	NA	**16.9**
	9/18/02	**0.63 ft FREE PRODUCT**							
	5/28/03	**0.12 ft FREE PRODUCT**							
	12/20/04	**0.43 ft FREE PRODUCT**							
	6/05/07	**2,130**	**19,700**	**4,080**	**22,400**	<100	**866**	**<500**	<0.010
	6/18/08	**3,730**	**24,700**	**4,780**	**19,400**	< 500	**3,360**	**< 2,500**	NA
	1/7/09	**0.17 ft FREE PRODUCT**							
	1/7/09	**0.01 ft FREE PRODUCT**							

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GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	3.3	BDL	BDL	BDL	6.9	2.1	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	NA	BDL
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	NA	BDL
	6/05/07	**50.5**	10.7	2	11.5	**49.6**	<5	<5	<0.010
	6/19/08	**21.1**	3.45	5.07	12.8	31.1	6.34	< 5.00	NA
	1/8/09	**81.7**	< 0.076	< 0.065	< 0.183	**55.6**	2.24 J	NA	< 0.0035
	11/5/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	NA	BDL
	9/18/02	NOT SAMPLED							
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	NOT SAMPLED							
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	NA
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	NA	BDL
	6/05/07	WELL DESTROYED							
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/05/07	WELL DESTROYED							

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	1.77	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL CASING BENT; BAILER OBSTRUCTED							
	1/7/09	WELL CASING BENT; BAILER OBSTRUCTED							
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	**54.7**	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	**66.5**	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	**61.6**	< 0.118	NA	< 0.0035
	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	**66.3**	< 0.176	< 0.116	< 0.0063
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	NA	BDL
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**5,150**	NA	**678**
	9/19/01	DRY							
	12/20/04	**0.82 ft FREE PRODUCT**							
	6/07/07	**4,750**	**17,400**	**3,010**	**15,900**	**147**	**1,230**	**<500**	<0.010
	6/18/08	**0.73 ft FREE PRODUCT**							
	1/7/09	**0.29 ft FREE PRODUCT**							
	11/3/14	**0.29 ft FREE PRODUCT**							

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Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**446**	NA	**46**
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**393**	NA	**E-67**
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**660**	NA	**54**
	6/07/07	**8,750**	**13,800**	**1,490**	6,820	**973**	**<500**	**<500**	<0.010
	6/18/08	**0.25 ft FREE PRODUCT**							
	1/7/09	**0.02 ft FREE PRODUCT**							
	11/3/14	**0.23 ft FREE PRODUCT**							
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/05/07	1.52	2.89	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	1.23	1.86	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

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GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-22D	6/07/07	3.2	8.2	1.24	6.01	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	NA	BDL
	8/20/98	2.6	2	12	86	BDL	12.9	NA	0.18
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	6.4	BDL	1.6	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	0.021
	6/07/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	**480**	NA	BDL
	8/20/98	**3,081**	19	6	3,046	**788**	**393**	NA	**2.48**
	9/19/01	2.64	5.37	2.1	42.2	BDL	1.09	NA	BDL
	5/29/03	**740**	4.58	BDL	269.8	**562**	**112**	NA	**0.34**
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.183	**48.2**	5.01	NA	< 0.0035
	12/20/04	**1,200**	BDL	BDL	210	**370**	**180**	NA	**0.16**
	6/05/07	**27**	9.18	1.26	5.89	**130**	<5	<5	<0.010
	6/18/08	**71.0**	1.39	< 1.00	5.77	**151**	**26.1**	< 5.00	NA
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.065	**48.2**	5.01	NA	< 0.0035
	11/3/14	PAVED OVER							

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	NA	BDL
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**728**	NA	**45**
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	**2,070**	NA	BDL
	9/18/02	DRY							
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**672**	NA	**E-15**
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**940**	NA	**6.1**
	6/06/07	**1,730**	**8,510**	**904**	5,720	<200	<1000	<1000	<0.010
	6/18/08	**3,080**	**20,500**	**3,450**	**16,200**	< 250	**2,120**	< 1,250	NA
	1/7/09	**2,640**	**15,800**	**2,930**	**18,600**	< 7.69	**983**	NA	**0.171**
	11/4/14	**412**	**3,060**	**1,650**	9,880	< 1.93	**577**	**< 2.9**	< 0.0063
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/07/07	**8.74**	10.4	1.30	6.63	<1	<5	<5	0.036
	6/18/08	< 1.00	1.67	< 1.00	5.56	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**440**	NA	**42**
	6/07/07	**8,640**	**13,100**	**1,380**	6,830	**1,030**	**<500**	**<500**	<0.010
	6/18/08	**6,970**	**16,900**	**2,540**	9,360	**568**	**1,660**	**< 1,250**	NA
	1/7/09	**6,510**	**11,100**	**2,020**	9,580	**515**	**503 J**	NA	**1.34**
	11/3/14	**5,690**	**9,750**	**1,790**	6,320	**618**	**636**	**< 5.81**	**3.50**
MW-32	6/07/07	**13,700**	**16,000**	**2,040**	**10,100**	**2,160**	**872**	**<500**	**0.142**
	6/18/08	**2.25 ft FREE PRODUCT**							
	1/7/09	**2.00 ft FREE PRODUCT**							
	11/3/14	**0.81 ft FREE PRODUCT**							
MW-33	6/07/07	**8.95**	11.6	1.07	5.87	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-34	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	19.7	< 0.176	< 0.116	< 0.0063
MW-34D	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-35	11/4/14	**21,800**	**42,300**	**3,430**	**17,500**	< 38.5	**3,180**	**< 58.1**	**6.19**
MW-36	11/3/14	**0.13 ft FREE PRODUCT**							
MW-37	11/3/14	< 0.555	< 0.609	< 0.545	< 0.894	**314**	< 0.880	< 0.581	< 0.0063
MW-38	11/5/14	**4,000**	**2,810**	**1,910**	6,310	**268**	**491**	**< 5.81**	< 0.0063
MW-38 Dup	11/5/14	**3,990**	**2,310**	**1,470**	5,060	**281**	**500**	**< 5.81**	< 0.0063
MW-39	11/3/14	**0.21 ft FREE PRODUCT**							
MW-40	11/3/14	**570**	**5,590**	**2,240**	8,520	**115 J**	**881**	**< 5.81**	< 0.0063
MW-40 Dup	11/3/14	**601**	**6,120**	**2,880**	**10,600**	**123 J**	**1,080**	**< 5.81**	0.019
MW-41	11/4/14	**21,000**	**35,500**	**3,210**	**15,000**	**2,300**	**1,500**	**171 J**	**13.7**

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-42	11/3/14	**23.6 J**	< 0.609	< 0.545	< 0.894	**410**	**26.6**	**10.4 J**	< 0.0063
MW-43	11/3/12	< 0.111	< 0.122	8.62	14.9 J	< 0.077	8.13	< 0.116	< 0.0063
MW-44	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	6.95	< 0.116	< 0.0063
Field Blank	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
	11/5/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
Trip Blank	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	NA

Notes:

1 Results shown in boldface type indicate concentrations which exceed the RBSL for that compound
2 BDL - below laboratory method detection limit
3 µg/L - micrograms per liter or parts per billion
4 NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis
5 NA- not analyzed/ data not available
6 MTBE - Methyl-tert-butyl-ether
7 EDB - 1,2- Dibromomethane
9 1, 2 DCA - 1,2 Dichloroethane
10 RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
MW-1	11/3/14	**1.0 ft FREE PRODUCT**							
MW-2	11/3/14	**2.10 ft FREE PRODUCT**							
MW-4	11/3/14	DRY							
MW-4R	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-5	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-6	11/5/14	**< 62,500**	**< 117**	**537 J**	< 18,800	**2,120 J**	< 120	**30,000**	< 243
MW-7B	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-8	11/3/14	UNABLE TO ACCESS WELL							
MW-8R	11/3/14	UNABLE TO ACCESS WELL							
MW-9B	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	70.4	< 0.487
MW-10	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-10R	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-11	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12R	11/4/14	< 125	< 0.234	17.9	< 37.6	22.1	< 0.240	**894**	< 0.487
MW-13R	11/4/14	< 6,250	< 11.7	13.8 J	< 1,880	< 14.5	< 12.0	**1,380**	< 24.3
MW-14B	11/3/14	**0.01 ft FREE PRODUCT**							
MW-15	11/5/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-16	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-18R	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-19	11/3/14	WELL CASING BENT; BAILER OBSTRUCTED							
MW-19R	11/3/14	< 125	< 0.234	9.63	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-20	11/3/14	**0.29 ft FREE PRODUCT**							
MW-20R	11/3/14	**0.23 ft FREE PRODUCT**							
MW-21	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-22	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-22D	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-24	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
MW-25	11/3/14	PAVED OVER							
MW-26	11/4/14	< 3,120	< 5.85	< 5.90	< 940	< 7.25	< 6.00	< 25.3	< 12.2
MW-27	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
PW-28	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-29	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-30	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
PW-31	11/3/14	< 6,250	< 11.7	117 J	< 1,880	36.4 J	< 12.0	**10,300**	< 24.3
MW-32	11/3/14	**0.81 ft FREE PRODUCT**							
MW-33	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-34	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-34D	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-35	11/4/14	**< 62,500**	**< 117**	< 118	< 18,800	< 154	< 120	**17,700**	< 243
MW-36	11/3/14	**0.13 ft FREE PRODUCT**							
MW-37	11/3/14	< 625	< 1.17	29.0	< 188	< 1.45	< 1.20	56.4 J	< 2.43
MW-38	11/5/14	< 6,250	< 11.7	43.7 J	< 1,880	86.6 J	< 12.0	**4,640**	< 24.3
MW-38 Dup	11/5/14	< 6,250	< 11.7	44.5 J	< 1,880	76.1 J	< 12.0	**5,360**	< 24.3
MW-39	11/3/14	**0.21 ft FREE PRODUCT**							
MW-40	11/3/14	< 6,250	< 11.7	< 11.8	< 1,880	< 14.5	< 12.0	**4,350**	< 24.3
MW-40 Dup	11/3/14	< 6,250	< 11.7	< 11.8	< 1,800	< 14.5	< 12.0	**3,490**	< 24.3
MW-41	11/4/14	**< 25,000**	< 46.8	**409 J**	< 7,520	858 J	< 48.0	**27,400**	< 97.4
MW-42	11/3/14	< 625	< 1.17	58.7	< 188	96.8	< 1.20	**2,090**	< 2.43
MW-43	11/3/14	< 125	< 0.234	< 0.236	< 37.6	2.22 J	< 0.240	61.5	< 0.487
MW-44	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
Field Blank	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
	11/5/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
Trip Blank	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

Notes:
1) Results shown in boldface type indicate detected compounds.
2) µg/L - micrograms per liter or parts per billion
3) ALs- SCDHEC Action Levels
4) NE - Not Established
5) 1,2-DCA = 1,2-dichloroethane
6) 8 Oxygenates abbreviated as:

ETBE = ethyl tert-butyl ether
DIPE = diisopropyl ether
ETBA = ethyl tert-butanol
TBA = t-butanol
TAME = t-amyl methyl ether
TAA = tert-amyl alcohol
TBF = tert-butyl formate

APPENDIX B

Ground Water Sampling Logs and Laboratory Analytical Report

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-6
Date:	11.5.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1330

Total Well Depth:	58	ft. BTOC	
Depth to water:	27.60	ft. BTOC	
Length of Water Column (LWC):	30.4	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x	.17 =	5.16	gal.
3 Casing Volumes:	15.50	gal.	

Remarks: _____

Field Analyses

Volume Purged (gal.)	5.16	10.34	15.50				
Time	1300	1310	1325	1330			
pH	10.02	10.32	10.34	10.34			
Specific Conductivity (umhos/cm)	428.3	465	463	464			
Water Temperature ©	21.9	21.9	21.8	21.8			
Turbidity	2.2	28.6	30.1	31.4			
Dissolved Oxygen (mg/L)	5.97						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-96
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1420

Total Well Depth:	30 ft. BTOC
Depth to water:	26.11 ft. BTOC
Length of Water Column (LWC):	3.89 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	.66 gal.
3 Casing Volumes:	1.98 gal.
Remarks:	well went dry @ 1.50

Field Analyses

Volume Purged (gal.)	.66	1.32	1.98				
Time	1410	1415	1420				
pH	5.84	6.00	6.03				
Specific Conductivity (umhos/cm)	179.5	188.5	188.9				
Water Temperature ©	19.9	19.6	19.1				
Turbidity	22	19	222				
Dissolved Oxygen (mg/L)	2.54						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-10R
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1355

Total Well Depth:	39 ft. BTOC
Depth to water:	25.20 ft. BTOC
Length of Water Column (LWC):	13.80 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.34 gal.
3 Casing Volumes:	7.03 gal.
Remarks:	Going dry @ 6.0

Field Analyses

Volume Purged (gal.)	2.34	4.68	7.03				
Time	1335	1345	1355				
pH	5.82	4.97	4.79				
Specific Conductivity (umhos/cm)	52.5	53.6	53.9				
Water Temperature ©	20.7	20.2	20.1				
Turbidity	1.4	1150+	866				
Dissolved Oxygen (mg/L)	7.44						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-12R
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1320

Total Well Depth:	45	ft. BTOC
Depth to water:	25.45	ft. BTOC
Length of Water Column (LWC):	19.55	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.32	gal.
3 Casing Volumes:	9.96	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	3.32	6.64	9.96				
Time	1255	1300	1310	1315	1320		
pH	5.93	6.09	6.06	6.04	6.03		
Specific Conductivity (umhos/cm)	114.6	119.2	121.3	121.6	121.8		
Water Temperature ©	20.3	20.7	20.9	20.9	21.3		
Turbidity	.96	21.40	28.2	30.6	30.9		
Dissolved Oxygen (mg/L)	4.41						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-13R
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1250

Total Well Depth:	44	ft. BTOC
Depth to water:	25.83	ft. BTOC
Length of Water Column (LWC):	18.17	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	3.08	gal.
3 Casing Volumes:	9.24	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	3.08	6.16	9.24				
Time	1230	1235	1240	1245	1250		
pH	5.38	5.42	5.43	5.40	5.43		
Specific Conductivity (umhos/cm)	756	633	650	658	678		
Water Temperature ©	21.6	21.1	21.0	21.9	21.9		
Turbidity	2.6	460	1100+	1100+	1100+		
Dissolved Oxygen (mg/L)	4.75						

Terracon

Groundwater Sampling Log

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Well ID:	MW-15
Date:	11.5.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1238

Total Well Depth:	130	ft. BTOC	
Depth to water:	27.69	ft. BTOC	
Length of Water Column (LWC):	102.31	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x	.17	= 17.39	gal.
3 Casing Volumes:	52.17	gal.	

Remarks: ____

Field Analyses

Volume Purged (gal.)	17.39	34.78	52.17				
Time	1030	1130	1230				
pH	7.83	7.49	7.42				
Specific Conductivity (umhos/cm)	37.8	51.9	51.7				
Water Temperature ©	21.3	21.2	21.2				
Turbidity	3.60	8.66	7.48				
Dissolved Oxygen (mg/L)	6.39						

Terracon

Groundwater Sampling Log

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Well ID:	MW-19R
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1650

Total Well Depth:	95 ft. BTOC
Depth to water:	28.26 ft. BTOC
Length of Water Column (LWC):	16.74 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.84 gal.
3 Casing Volumes:	8.53 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	2.84	5.69	8.53				
Time	1615	1630	1645	1650			
pH	7.53	5.29	4.94	4.87			
Specific Conductivity (umhos/cm)	118.1	123.4	122.9	122.9			
Water Temperature ©	18.2	18.3	18.6	18.7			
Turbidity	0.73	311	366	358			
Dissolved Oxygen (mg/L)	5.95						

Terracon

Groundwater Sampling Log

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Well ID:	MW-21
Date:	11-3-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1750

Total Well Depth:	40.3	ft. BTOC
Depth to water:	33.10	ft. BTOC
Length of Water Column (LWC):	7.20	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.22	gal.
3 Casing Volumes:	3.66	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	1.22	2.44	3.66				
Time	1730	1735	1740	1745	1750		
pH	6.53	6.42	6.45	6.43	6.34		
Specific Conductivity (umhos/cm)	352.9	399.6	335.8	338.8	338.3		
Water Temperature ©	16.4	17.0	16.8	16.7	16.2		
Turbidity	1.2	122.6	136.0	124.9	126.0		
Dissolved Oxygen (mg/L)	4.36						

Terracon

Groundwater Sampling Log

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Well ID:	MW-22
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	55
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	0740

Total Well Depth:	42 ft. BTOC
Depth to water:	34.77 ft. BTOC
Length of Water Column (LWC):	7.23 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.22 gal.
3 Casing Volumes:	3.66 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	1.22	2.44	3.66				
Time	0725	0730	0735	0740			
pH	5.10	4.93	4.83	4.77			
Specific Conductivity (umhos/cm)	58.6	56.3	56.3	56.7			
Water Temperature ©	14.8	15.9	16.7	16.8			
Turbidity	.99	360	374	366			
Dissolved Oxygen (mg/L)	7.24						

Terracon

Groundwater Sampling Log

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Well ID:	MW-22d
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	0700

Total Well Depth:	57	ft. BTOC
Depth to water:	31.13	ft. BTOC
Length of Water Column (LWC):	25.87	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	4.39	gal.
3 Casing Volumes:	13.19	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	4.39	8.80	13.19				
Time	0600	0630	0700				
pH	7.23	6.20	6.25				
Specific Conductivity (umhos/cm)	109.7	87.1	85.7				
Water Temperature ©	15.2	15.1	16.0				
Turbidity	0.90	3.24	7.61				
Dissolved Oxygen (mg/L)	5.35						

Terracon

Groundwater Sampling Log

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Well ID:	MW-24
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1120

Total Well Depth:	40 ft. BTOC
Depth to water:	26.49 ft. BTOC
Length of Water Column (LWC):	13.51 ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	2.29 gal.
3 Casing Volumes:	6.89 gal.
Remarks:	Going dry @ 3.0

Field Analyses

Volume Purged (gal.)	2.29	4.60	6.89				
Time	1118	1120					
pH	6.56	6.39	5.83				
Specific Conductivity (umhos/cm)	83.7	74.5	74.1				
Water Temperature ©	19.9	19.8	20.6				
Turbidity	1.4	4.6	44.2				
Dissolved Oxygen (mg/L)	6.53						

Terracon

Groundwater Sampling Log

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Well ID:	MW-26
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1050

Total Well Depth:	30 ft. BTOC
Depth to water:	16.15 ft. BTOC
Length of Water Column (LWC):	13.85 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.35 gal.
3 Casing Volumes:	7.06 gal.
Remarks:	well going dry @ 1.5 GAL

Field Analyses

Volume Purged (gal.)	2.35	4.71	7.06				
Time	1045	1050					
pH	6.14	6.09					
Specific Conductivity (umhos/cm)	1771	1687					
Water Temperature ©	19.3	19.8					
Turbidity	8.4	6.86					
Dissolved Oxygen (mg/L)	5.37						

Terracon

Groundwater Sampling Log

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Well ID:	MW-27
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	0910

Total Well Depth:	40 ft. BTOC
Depth to water:	27.10 ft. BTOC
Length of Water Column (LWC):	12.9 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.19 gal.
3 Casing Volumes:	6.57 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	2.19	4.38	6.57				
Time	0845	0850	0855	0900	0905	0910	
pH	5.27	5.08	5.06	5.04	5.02	5.02	
Specific Conductivity (umhos/cm)	61.3	66.0	68.2	66.9	67.4	67.4	
Water Temperature ©	17.5	18.9	18.3	19.3	19.7	19.6	
Turbidity	1.9	32.6	442	404	458	450	
Dissolved Oxygen (mg/L)	7.03						

Terracon

Groundwater Sampling Log

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Well ID:	PW-28
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1015

Total Well Depth:	55	ft. BTOC	
Depth to water:	27.54	ft. BTOC	
Length of Water Column (LWC):	27.46	ft.	
Casing Diameter:	2	in.	
1 Casing Volume = LWC x	.17	= 4.66	gal.
3 Casing Volumes:	14.00	gal.	

Remarks: _____

Field Analyses

Volume Purged (gal.)	4.66	9.34	14.00				
Time	0915	0945	1015				
pH	6.04	6.59	6.63				
Specific Conductivity (umhos/cm)	1268	1323	1344				
Water Temperature ©	18.2	18.7	19.2				
Turbidity	.88	4.6	9.4				
Dissolved Oxygen (mg/L)	4.08						

Terracon

Groundwater Sampling Log

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Well ID:	MW-29
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	0815

Total Well Depth:	38	ft. BTOC
Depth to water:	26.83	ft. BTOC
Length of Water Column (LWC):	11.17	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.89	gal.
3 Casing Volumes:	5.69	gal.

Remarks:

Field Analyses

Volume Purged (gal.)	1.89	3.80	5.69				
Time	0755	0800	0805	0810	0815		
pH	5.03	5.11	5.04	5.08	5.07		
Specific Conductivity (umhos/cm)	23.5	21.5	22.5	21.9	21.9		
Water Temperature ©	18.4	19.7	20.4	20.6	20.6		
Turbidity	2.09	122.4	1100+	966	945	968	
Dissolved Oxygen (mg/L)	5.46						

Terracon

Groundwater Sampling Log

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Well ID:	MW-30
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	0840

Total Well Depth:	26 ft. BTOC
Depth to water:	21.52 ft. BTOC
Length of Water Column (LWC):	4.48 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	.76 gal.
3 Casing Volumes:	2.28 gal.
Remarks:	Going dry @ 1.50

Field Analyses

Volume Purged (gal.)	.76	1.52	2.28				
Time	0825	0835	0840				
pH	5.42	5.46	5.46				
Specific Conductivity (umhos/cm)	420	42.8	42.6				
Water Temperature ©	16.5	16.9	17.4				
Turbidity	1.1	2.44	8.68				
Dissolved Oxygen (mg/L)	3.96						

Terracon

Groundwater Sampling Log

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Well ID:	PW-31
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1300

Total Well Depth:	55 ft. BTOC
Depth to water:	26.90 ft. BTOC
Length of Water Column (LWC):	28.10 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	4.77 gal.
3 Casing Volumes:	14.33 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	4.77	9.54	14.33				
Time	1200	1230	1300				
pH	7.13	6.62	6.46				
Specific Conductivity (umhos/cm)	360.2	265.8	256.3				
Water Temperature ©	19.7	18.5	17.9				
Turbidity	0.90	3.04	9.61				
Dissolved Oxygen (mg/L)	4.38						

Terracon

Groundwater Sampling Log

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Well ID:	MW-33
Date:	11.5.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1600

Total Well Depth:	38 ft. BTOC
Depth to water:	20.93 ft. BTOC
Length of Water Column (LWC):	17.07 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.90 gal.
3 Casing Volumes:	8.70 gal.
Remarks:	well going dry @ 1.0 cal

Field Analyses

Volume Purged (gal.)	2.90	5.80	8.70				
Time	1550	1600					
pH	6.95	6.82					
Specific Conductivity (umhos/cm)	2229	234.2					
Water Temperature ©	19.7	19.2					
Turbidity	402	814					
Dissolved Oxygen (mg/L)	4.64						

Terracon

Groundwater Sampling Log

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Well ID:	MW-34
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1510

Total Well Depth:	34 ft. BTOC
Depth to water:	30.48 ft. BTOC
Length of Water Column (LWC):	3.52 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	.59 gal.
3 Casing Volumes:	1.79 gal.
Remarks:	Going dry @ .50 GAL

Field Analyses

Volume Purged (gal.)	.59	1.20	1.79				
Time	1505	1510					
pH	5.13	4.75					
Specific Conductivity (umhos/cm)	270.9	124.7					
Water Temperature ©	17.5	18.3					
Turbidity	3.02	2.85					
Dissolved Oxygen (mg/L)	4.97						

Terracon

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Well ID:	MW-34d
Date:	11-3-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1440

Total Well Depth:	60 ft. BTOC
Depth to water:	35.66 ft. BTOC
Length of Water Column (LWC):	24.34 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	4.13 gal.
3 Casing Volumes:	12.41 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	4.13	8.28	12.41				
Time	1350	1400	1430	1435	1440		
pH	6.12	6.34	6.46	6.44	6.45		
Specific Conductivity (umhos/cm)	304.7	330.4	335.4	335.6	332		
Water Temperature ©	17.5	17.6	17.2	17.2	18.0		
Turbidity	5.82	137	140	144	141		
Dissolved Oxygen (mg/L)	7.45						

Terracon

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Well ID:	MW-35
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1600

Total Well Depth:	40 ft. BTOC
Depth to water:	29.53 ft. BTOC
Length of Water Column (LWC):	10.47 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.77 gal.
3 Casing Volumes:	5.33 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	1.77	3.56	5.33				
Time	1540	1556	1555	1600			
pH	5.89	5.23	5.16	5.16			
Specific Conductivity (umhos/cm)	74.0	73.9	78.9	79.1			
Water Temperature ©	22.5	22.3	21.8	21.8			
Turbidity	4.6	860	882	882			
Dissolved Oxygen (mg/L)	2.96						

Terracon

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Well ID:	MW-37
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1720

Total Well Depth:	41	ft. BTOC
Depth to water:	30.64	ft. BTOC
Length of Water Column (LWC):	10.36	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1.76	gal.
3 Casing Volumes:	5.28	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	1.76	3.52	5.28				
Time	1700	1705	1710	1715	1720		
pH	4.93	4.91	4.86	4.86	4.87		
Specific Conductivity (umhos/cm)	127.3	58.2	123.6	124.4	123.5		
Water Temperature ©	19.6	20.2	21.0	21.2	21.0		
Turbidity	9.39	1100+	1100+	1100+	1100+		
Dissolved Oxygen (mg/L)	4.53						

Terracon

Groundwater Sampling Log

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Well ID:	MW-38
Date:	11.5.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1500

Total Well Depth:	43 ft. BTOC
Depth to water:	28.62 ft. BTOC
Length of Water Column (LWC):	15.38 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.44 gal.
3 Casing Volumes:	7.33 gal.
Remarks:	Going dry @ 6.0

Field Analyses

Volume Purged (gal.)	2.44	4.88	7.33				
Time	1448	1450	1500				
pH	8.52	7.49	6.98				
Specific Conductivity (umhos/cm)	244.2	224.8	223.7				
Water Temperature ©	21.5	21.1	21.1				
Turbidity	1.8	1100+	1100+				
Dissolved Oxygen (mg/L)							

Terracon

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Well ID:	MW-38 dup
Date:	11-5-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1500

Total Well Depth:	43 ft. BTOC
Depth to water:	28.62 ft. BTOC
Length of Water Column (LWC):	15.38 ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time				1500			
pH				6.98			
Specific Conductivity (umhos/cm)				223.1			
Water Temperature ©				21.1			
Turbidity				1100+			
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-40
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	62
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1615

Total Well Depth:	40 ft. BTOC
Depth to water:	24.12 ft. BTOC
Length of Water Column (LWC):	15.88 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.69 gal.
3 Casing Volumes:	8.09 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	2.69	5.40	8.09				
Time	1550	1600	1610	1615			
pH	6.21	6.34	6.46	6.45			
Specific Conductivity (umhos/cm)	1605	164.9	169.7	169.7			
Water Temperature ©	21.3	21.9	21.7	21.7			
Turbidity	25.0	860	866	904			
Dissolved Oxygen (mg/L)	3.48						

Terracon

Groundwater Sampling Log

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Well ID:	MW-40 dup
Date:	11.3.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	60
Air Temperature:	Clear
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1615

Total Well Depth:	40 ft. BTOC
Depth to water:	24.12 ft. BTOC
Length of Water Column (LWC):	15.88 ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)					[illegible]		
Time					1615		
pH					6.47		
Specific Conductivity (umhos/cm)					169.2		
Water Temperature ©					21.3		
Turbidity					916		
Dissolved Oxygen (mg/L)							

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Groundwater Sampling Log

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Well ID:	MW-41
Date:	11.4.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1215

Total Well Depth:	35 ft. BTOC
Depth to water:	25.76 ft. BTOC
Length of Water Column (LWC):	9.24 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.57 gal.
3 Casing Volumes:	4.71 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	1.57	3.14	4.71				
Time	1155	1200	1205	1210	1215		
pH	4.93	4.73	4.70	4.64	4.64		
Specific Conductivity (umhos/cm)	1895	2043	2082	2066	2067		
Water Temperature ©	21.1	21.4	21.3	22.3	22.3		
Turbidity	2.1	1100+	1100+	1100+	1100+		
Dissolved Oxygen (mg/L)	4.20						

Terracon

Groundwater Sampling Log

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Well ID:	MW-42
Date:	11-3-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	Cold
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1540

Total Well Depth:	34 ft. BTOC
Depth to water:	26.00 ft. BTOC
Length of Water Column (LWC):	8.00 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.36 gal.
3 Casing Volumes:	4.08 gal.
Remarks:	Going dry @ 3.25 GAL

Field Analyses

Volume Purged (gal.)	1.36	2.72	4.08				
Time	1530	1535	1540				
pH	5.06	4.93	4.88				
Specific Conductivity (umhos/cm)	147.7	137.7	133.9				
Water Temperature ©	17.6	17.7	18.2				
Turbidity	1.23	166	234				
Dissolved Oxygen (mg/L)	5.63						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-43
Date:	11-3-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1340

Total Well Depth:	40. ft. BTOC
Depth to water:	26.55 ft. BTOC
Length of Water Column (LWC):	13.45 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	2.28 gal.
3 Casing Volumes:	6.85 gal.
Remarks:	Groove day @ 5 Gal

Field Analyses

Volume Purged (gal.)	2.28	4.57	6.85				
Time	1320	1330	1340				
pH	5.38	4.97	4.96				
Specific Conductivity (umhos/cm)	85.1	70.7	68.3				
Water Temperature ©	17.2	17.7	17.7				
Turbidity	1.06	166	184				
Dissolved Oxygen (mg/L)	7.44						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-44
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	50
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1145

Total Well Depth:	35 ft. BTOC
Depth to water:	26.79 ft. BTOC
Length of Water Column (LWC):	8.21 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	1.39 gal.
3 Casing Volumes:	4.18 gal.
Remarks:	Grey clay @ 2.50

Field Analyses

Volume Purged (gal.)	1.39	2.79	4.18				
Time	1135	1140	1145				
pH	5.58	5.51	5.52				
Specific Conductivity (umhos/cm)	73.1	71.0	64.1				
Water Temperature ©	20.4	21.1	21.3				
Turbidity	1.1	7.6	14.4				
Dissolved Oxygen (mg/L)	3.88						

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	FIELD BLANK
Date:	11-3-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1720

Total Well Depth:	ft. BTOC
Depth to water:	ft. BTOC
Length of Water Column (LWC):	ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	Field blank
Date:	11-4-14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Clear
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1700

Total Well Depth:	ft. BTOC
Depth to water:	ft. BTOC
Length of Water Column (LWC):	ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time	1700						
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	Field blank
Date:	11.5.14
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	Cloudy
Air Temperature:	60
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	1530

Total Well Depth:	ft. BTOC
Depth to water:	ft. BTOC
Length of Water Column (LWC):	ft.
Casing Diameter:	in.
1 Casing Volume = LWC x ____ =	gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	/						
Time	1530						
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

Terracon

Groundwater Sampling Log

Page ____ of ____

Well ID:	TRIP BLANK
Date:	
Site Name:	Former Sc-576
Project No.:	73048013
Field Personnel:	Neil Akre
Weather Conditions:	
Air Temperature:	
Well Evacuation Method:	Bailer
Sample Collection Method:	Bailer
Sampled at (time):	

Total Well Depth:	ft. BTOC
Depth to water:	ft. BTOC
Length of Water Column (LWC):	ft.
Casing Diameter:	in.
1 Casing Volume = LWC x _____ =	gal.
3 Casing Volumes:	gal.
Remarks:	

Field Analyses

Volume Purged (gal.)							
Time							
pH							
Specific Conductivity (umhos/cm)							
Water Temperature ©							
Turbidity							
Dissolved Oxygen (mg/L)							

EQUIPMENT CALIBRATION LOG

Terracon

INSTRUMENT: YSI 55 YSI 1030

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
11-3-14	one point two point three point other (specify):	yes no	AKRE SIGNATURE	pH 4 7 10 4.0 7.0 10.0

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
	one point two point three point other (specify):	yes no	SIGNATURE	Elev. 535 McCormick SC PPT 0.0

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
	one point two point three point other (specify):	yes no	SIGNATURE	

INSTRUMENT: _____

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
	one point two point three point other (specify):	yes no	SIGNATURE	

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
	one point two point three point other (specify):	yes no	SIGNATURE	

DATE	CALIBRATION TYPE	CALIBRATION SUCCESSFUL?	NAME	COMMENTS
	one point two point three point other (specify):	yes no	SIGNATURE	

ACCESS ANALYTICAL, INC.

ANALYTICAL REPORT

CLIENT
Terracon
521 Clemson Rd
Columbia, SC 29201

ATTENTION
Regan Norris

PROJECT ID
SC-576

LABORATORY REPORT NUMBER
214110749

DATE
11/17/2014

Primary Data Review By

Authorized Signature

Secondary Data Review By

Ashley B. Amick
Project Manager, Access Analytical, Inc.
aamick@accessanalyticalinc.com

PLEASE NOTE:

- **Unless otherwise noted, all analysis on this report performed at Gulf Coast Analytical Labs (GCAL), 7979 Innovation Park Dr., Baton Rouge, LA 70820.**
- **GCAL is SCDHEC certified laboratory # 73006, NCDENR certified lab # 618, GA certified lab # LA-01955, NELAP certified laboratory # 01955**
- Local support services for this project are provided by Access Analytical, Inc.. Access Analytical is a representative of GCAL serving clients in the SC/NC/GA areas. All questions regarding this report should be directed to your local Access Analytical representative at 803.781.4243 or toll free at 888.315.4243.

ANALYTICAL RESULTS

PERFORMED BY

GCAL, LLC
7979 Innovation Park Dr.
Baton Rouge, LA 70820

Report Date 11/17/2014

GCAL Report 214110749

Deliver To	Terracon 521 Clemson Rd Columbia, SC 29201
Attn	Regan Norris

Project SC-576

PJLA Testing DoD ELAP

ISO 17025

NELAP ACCREDITED TNI LABORATORY

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

Common Abbreviations Utilized in this Report

ND	Indicates the result was Not Detected at the specified LOQ
DO	Indicates the result was Diluted Out
MI	Indicates the result was subject to Matrix Interference
TNTC	Indicates the result was Too Numerous To Count
SUBC	Indicates the analysis was Sub-Contracted
FLD	Indicates the analysis was performed in the Field
MDL	Method Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
00:00	Reported as a time equivalent to 12:00 AM

Reporting Flags Utilized in this Report

J	Indicates the result is between the MDL and LOQ
U	Indicates the compound was analyzed for but not detected
B	Indicates the analyte was detected in the associated Method Blank

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the NELAC standard and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature
GCAL Report 214110749

Case Narrative

Client: Access Analytical **Report:** 214110749

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

VOLATILES MASS SPECTROMETRY

In the EPA 8260B analysis, several samples had to be diluted to bracket the concentration of target compounds within the calibration range of the instrument. The dilution is reflected in elevated detection limits.

SEMI-VOLATILES GAS CHROMATOGRAPHY

In the EPA 8011 analysis, several samples had to be diluted to bracket target compounds within the calibration range of the instrument. This is reflected in elevated detection limits.

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21411074901	06443 MW-19R	Water	11/03/2014 16:50	11/07/2014 09:40
21411074902	06443 PW-31	Water	11/03/2014 13:00	11/07/2014 09:40
21411074903	06443 MW-34	Water	11/03/2014 15:10	11/07/2014 09:40
21411074904	06443 MW-34d	Water	11/03/2014 14:40	11/07/2014 09:40
21411074905	06443 MW-37	Water	11/03/2014 17:20	11/07/2014 09:40
21411074906	06443 MW-40	Water	11/03/2014 16:15	11/07/2014 09:40
21411074907	06443 MW-40 dup	Water	11/03/2014 16:15	11/07/2014 09:40
21411074908	06443 MW-42	Water	11/03/2014 15:40	11/07/2014 09:40
21411074909	06443 MW-43	Water	11/03/2014 13:40	11/07/2014 09:40
21411074910	06443 FIELD BLANK	Water	11/03/2014 17:20	11/07/2014 09:40
21411074911	06443 MW-21	Water	11/03/2014 17:50	11/07/2014 09:40
21411074912	06443 MW-9b	Water	11/04/2014 14:20	11/07/2014 09:40
21411074913	06443 MW-10R	Water	11/04/2014 13:55	11/07/2014 09:40
21411074914	06443 MW-12R	Water	11/04/2014 13:20	11/07/2014 09:40
21411074915	06443 MW-13R	Water	11/04/2014 12:50	11/07/2014 09:40
21411074916	06443 MW-22	Water	11/04/2014 07:40	11/07/2014 09:40
21411074917	06443 MW-22d	Water	11/04/2014 07:00	11/07/2014 09:40
21411074918	06443 MW-24	Water	11/04/2014 11:20	11/07/2014 09:40
21411074919	06443 MW-26	Water	11/04/2014 10:50	11/07/2014 09:40
21411074920	06443 MW-27	Water	11/04/2014 09:10	11/07/2014 09:40
21411074921	06443 PW-28	Water	11/04/2014 10:15	11/07/2014 09:40
21411074922	06443 MW-29	Water	11/04/2014 08:15	11/07/2014 09:40
21411074923	06443 MW-30	Water	11/04/2014 08:40	11/07/2014 09:40
21411074924	06443 MW-35	Water	11/04/2014 16:00	11/07/2014 09:40
21411074925	06443 MW-41	Water	11/04/2014 12:15	11/07/2014 09:40
21411074926	06443 MW-44	Water	11/04/2014 11:45	11/07/2014 09:40
21411074927	06443 FIELD BLANK	Water	11/04/2014 17:00	11/07/2014 09:40
21411074928	06443 MW-6	Water	11/05/2014 13:30	11/07/2014 09:40
21411074929	06443 MW-15	Water	11/05/2014 12:30	11/07/2014 09:40
21411074930	06443 MW-38	Water	11/05/2014 15:00	11/07/2014 09:40
21411074931	06443 MW-38DUP	Water	11/05/2014 15:00	11/07/2014 09:40
21411074932	06443 FIELD BLANK	Water	11/05/2014 15:30	11/07/2014 09:40
21411074933	06443 TRIP BLANK	Water	11/03/2014 00:00	11/07/2014 09:40

Summary of Compounds Detected

06443 MW-19R

Collect Date 11/03/2014 16:50 **GCAL ID** 21411074901
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
108-20-3	diisopropyl Ether (DIPE)	9.63	0.236	5.00	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	66.3	0.077	5.00	ug/L

06443 PW-31

Collect Date 11/03/2014 13:00 **GCAL ID** 21411074902
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	5690	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	117J	11.8	250	ug/L
100-41-4	Ethylbenzene	1790	5.45	250	ug/L
91-20-3	Naphthalene	636	8.80	250	ug/L
75-65-0	t-Butanol (TBA)	36.4J	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	10300	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	618	3.85	250	ug/L
108-88-3	Toluene	9750	6.09	250	ug/L
1330-20-7	Xylene (total)	6320	8.94	750	ug/L

EPA 8011

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	3.50	0.013	0.020	ug/L

06443 MW-34

Collect Date 11/03/2014 15:10 **GCAL ID** 21411074903
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
1634-04-4	tert-Butyl methyl ether (MTBE)	19.7	0.077	5.00	ug/L

06443 MW-37

Collect Date 11/03/2014 17:20 **GCAL ID** 21411074905
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
108-20-3	diisopropyl Ether (DIPE)	29.0	1.18	25.0	ug/L

Summary of Compounds Detected

06443 MW-37

Collect Date 11/03/2014 17:20 **GCAL ID** 21411074905
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

CAS#	Parameter	Result	MDL	LOQ	Units
75-85-4	tert-amyl alcohol (TAA)	56.4J	5.07	100	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	314	0.385	25.0	ug/L

06443 MW-40

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074906
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	570	5.55	250	ug/L
100-41-4	Ethylbenzene	2240	5.45	250	ug/L
91-20-3	Naphthalene	881	8.80	250	ug/L
75-85-4	tert-amyl alcohol (TAA)	4350	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	115J	3.85	250	ug/L
108-88-3	Toluene	5590	6.09	250	ug/L
1330-20-7	Xylene (total)	8520	8.94	750	ug/L

06443 MW-40 dup

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074907
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	601	5.55	250	ug/L
100-41-4	Ethylbenzene	2880	5.45	250	ug/L
91-20-3	Naphthalene	1080	8.80	250	ug/L
75-85-4	tert-amyl alcohol (TAA)	3490	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	123J	3.85	250	ug/L
108-88-3	Toluene	6120	6.09	250	ug/L
1330-20-7	Xylene (total)	10600	8.94	750	ug/L

EPA 8011

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.019	0.00630	0.010	ug/L

Summary of Compounds Detected

06443 MW-42

Collect Date 11/03/2014 15:40 **GCAL ID** 21411074908
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	10.4J	0.581	25.0	ug/L
71-43-2	Benzene	23.6J	0.555	25.0	ug/L
108-20-3	diisopropyl Ether (DIPE)	58.7	1.18	25.0	ug/L
91-20-3	Naphthalene	26.6	0.880	25.0	ug/L
75-65-0	t-Butanol (TBA)	96.8	1.45	50.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	2090	5.07	100	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	410	0.385	25.0	ug/L

06443 MW-43

Collect Date 11/03/2014 13:40 **GCAL ID** 21411074909
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
100-41-4	Ethylbenzene	8.62	0.109	5.00	ug/L
91-20-3	Naphthalene	8.13	0.176	5.00	ug/L
75-65-0	t-Butanol (TBA)	2.22J	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	61.5	1.01	20.0	ug/L
1330-20-7	Xylene (total)	14.9J	0.179	15.0	ug/L

06443 MW-9b

Collect Date 11/04/2014 14:20 **GCAL ID** 21411074912
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
75-85-4	tert-amyl alcohol (TAA)	70.4	1.01	20.0	ug/L

06443 MW-12R

Collect Date 11/04/2014 13:20 **GCAL ID** 21411074914
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	508	0.555	25.0	ug/L
108-20-3	diisopropyl Ether (DIPE)	17.9	0.236	5.00	ug/L
91-20-3	Naphthalene	39.7	0.176	5.00	ug/L
75-65-0	t-Butanol (TBA)	22.1	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	894	5.07	100	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	3.74J	0.077	5.00	ug/L
1330-20-7	Xylene (total)	1.73J	0.179	15.0	ug/L

Summary of Compounds Detected

06443 MW-13R

Collect Date 11/04/2014 12:50 **GCAL ID** 21411074915
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	323	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	13.8J	11.8	250	ug/L
100-41-4	Ethylbenzene	1750	5.45	250	ug/L
91-20-3	Naphthalene	801	8.80	250	ug/L
75-85-4	tert-amyl alcohol (TAA)	1380	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	60.3J	3.85	250	ug/L
108-88-3	Toluene	3670	6.09	250	ug/L
1330-20-7	Xylene (total)	11100	8.94	750	ug/L

06443 MW-26

Collect Date 11/04/2014 10:50 **GCAL ID** 21411074919
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	412	2.78	125	ug/L
100-41-4	Ethylbenzene	1650	2.73	125	ug/L
91-20-3	Naphthalene	577	4.40	125	ug/L
108-88-3	Toluene	3060	3.05	125	ug/L
1330-20-7	Xylene (total)	9880	4.47	375	ug/L

06443 MW-35

Collect Date 11/04/2014 16:00 **GCAL ID** 21411074924
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	21800	55.5	2500	ug/L
100-41-4	Ethylbenzene	3430	54.5	2500	ug/L
91-20-3	Naphthalene	3180	88.0	2500	ug/L
75-85-4	tert-amyl alcohol (TAA)	17700	507	10000	ug/L
108-88-3	Toluene	42300	60.9	2500	ug/L
1330-20-7	Xylene (total)	17500	89.4	7500	ug/L

EPA 8011

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	6.19	0.032	0.050	ug/L

Summary of Compounds Detected

06443 MW-41

Collect Date 11/04/2014 12:15 **GCAL ID** 21411074925
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	171J	23.2	1000	ug/L
71-43-2	Benzene	21000	22.2	1000	ug/L
108-20-3	diisopropyl Ether (DIPE)	409J	47.2	1000	ug/L
100-41-4	Ethylbenzene	3210	21.8	1000	ug/L
91-20-3	Naphthalene	1500	35.2	1000	ug/L
75-65-0	t-Butanol (TBA)	858J	58.0	2000	ug/L
75-85-4	tert-amyl alcohol (TAA)	27400	203	4000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	2300	15.4	1000	ug/L
108-88-3	Toluene	35500	24.4	1000	ug/L
1330-20-7	Xylene (total)	15000	35.8	3000	ug/L

EPA 8011

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	13.7	0.032	0.050	ug/L

06443 MW-44

Collect Date 11/04/2014 11:45 **GCAL ID** 21411074926
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
91-20-3	Naphthalene	6.95	0.176	5.00	ug/L

06443 MW-6

Collect Date 11/05/2014 13:30 **GCAL ID** 21411074928
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	7710	55.5	2500	ug/L
108-20-3	diisopropyl Ether (DIPE)	537J	118	2500	ug/L
100-41-4	Ethylbenzene	330J	54.5	2500	ug/L
91-20-3	Naphthalene	749J	88.0	2500	ug/L
75-65-0	t-Butanol (TBA)	2120J	145	5000	ug/L
75-85-4	tert-amyl alcohol (TAA)	30000	507	10000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	19900	38.5	2500	ug/L
108-88-3	Toluene	559J	60.9	2500	ug/L
1330-20-7	Xylene (total)	1260J	89.4	7500	ug/L

Summary of Compounds Detected

06443 MW-38

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074930
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	4000	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	43.7J	11.8	250	ug/L
100-41-4	Ethylbenzene	1910	5.45	250	ug/L
91-20-3	Naphthalene	491	8.80	250	ug/L
75-65-0	t-Butanol (TBA)	86.6J	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	4640	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	268	3.85	250	ug/L
108-88-3	Toluene	2810	6.09	250	ug/L
1330-20-7	Xylene (total)	6310	8.94	750	ug/L

06443 MW-38DUP

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074931
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	Benzene	3990	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	44.5J	11.8	250	ug/L
100-41-4	Ethylbenzene	1470	5.45	250	ug/L
91-20-3	Naphthalene	500	8.80	250	ug/L
75-65-0	t-Butanol (TBA)	76.1J	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	5360	50.7	1000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	281	3.85	250	ug/L
108-88-3	Toluene	2310	6.09	250	ug/L
1330-20-7	Xylene (total)	5060	8.94	750	ug/L

Sample Results

06443 MW-19R

Collect Date 11/03/2014 16:50 **GCAL ID** 21411074901
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 16:52	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	**diisopropyl Ether (DIPE)**	**9.63**	**0.236**	**5.00**	**ug/L**
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**66.3**	**0.077**	**5.00**	**ug/L**
108-88-3	Toluene	0.122U	0.122	5.00	ug/L
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.9	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	48	ug/L	96	77 - 127
2037-26-5	Toluene d8	50	46.3	ug/L	93	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.4	ug/L	97	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 18:25	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 PW-31

Collect Date 11/03/2014 13:00 **GCAL ID** 21411074902
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 17:15	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	**Benzene**	**5690**	**5.55**	**250**	**ug/L**
108-20-3	**diisopropyl Ether (DIPE)**	**117J**	**11.8**	**250**	**ug/L**
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	**Ethylbenzene**	**1790**	**5.45**	**250**	**ug/L**

Sample Results

06443 PW-31

Collect Date 11/03/2014 13:00 **GCAL ID** 21411074902
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 17:15	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
91-20-3	**Naphthalene**	**636**	**8.80**	**250**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	**t-Butanol (TBA)**	**36.4J**	**14.5**	**500**	**ug/L**
75-85-4	**tert-amyl alcohol (TAA)**	**10300**	**50.7**	**1000**	**ug/L**
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**618**	**3.85**	**250**	**ug/L**
108-88-3	**Toluene**	**9750**	**6.09**	**250**	**ug/L**
1330-20-7	**Xylene (total)**	**6320**	**8.94**	**750**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2110	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	2500	2330	ug/L	93	77 - 127
2037-26-5	Toluene d8	2500	2230	ug/L	89	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2380	ug/L	95	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	2	11/14/2014 12:31	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	**1,2-Dibromoethane**	**3.50**	**0.013**	**0.020**	**ug/L**

06443 MW-34

Collect Date 11/03/2014 15:10 **GCAL ID** 21411074903
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 17:38	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**19.7**	**0.077**	**5.00**	**ug/L**
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-34

Collect Date 11/03/2014 15:10 **GCAL ID** 21411074903
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 17:38	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.4	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	46.7	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	49.4	ug/L	99	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.5	ug/L	97	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 19:00	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-34d

Collect Date 11/03/2014 14:40 **GCAL ID** 21411074904
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 18:01	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-34d

Collect Date 11/03/2014 14:40 **GCAL ID** 21411074904
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 18:01	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	46.3	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	46.4	ug/L	93	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.7	ug/L	95	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 19:34	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-37

Collect Date 11/03/2014 17:20 **GCAL ID** 21411074905
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	11/08/2014 18:24	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.581U	0.581	25.0	ug/L
71-43-2	Benzene	0.555U	0.555	25.0	ug/L
108-20-3	**diisopropyl Ether (DIPE)**	**29.0**	**1.18**	**25.0**	**ug/L**
64-17-5	Ethanol	625U	625	5000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	188U	188	500	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	1.17U	1.17	25.0	ug/L
100-41-4	Ethylbenzene	0.545U	0.545	25.0	ug/L
91-20-3	Naphthalene	0.880U	0.880	25.0	ug/L
994-05-8	t-amyl methyl ether (TAME)	1.20U	1.20	25.0	ug/L
75-65-0	t-Butanol (TBA)	1.45U	1.45	50.0	ug/L
75-85-4	**tert-amyl alcohol (TAA)**	**56.4J**	**5.07**	**100**	**ug/L**
762-75-4	tert-butyl formate (TBF)	2.43U	2.43	250	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**314**	**0.385**	**25.0**	**ug/L**
108-88-3	Toluene	0.609U	0.609	25.0	ug/L

Sample Results

06443 MW-37

Collect Date 11/03/2014 17:20 **GCAL ID** 21411074905
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	11/08/2014 18:24	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.894U	0.894	75.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	220	ug/L	88	78 - 130
1868-53-7	Dibromofluoromethane	250	230	ug/L	92	77 - 127
2037-26-5	Toluene d8	250	243	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	248	ug/L	99	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 19:51	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-40

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074906
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 18:48	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	**Benzene**	**570**	**5.55**	**250**	**ug/L**
108-20-3	diisopropyl Ether (DIPE)	11.8U	11.8	250	ug/L
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	**Ethylbenzene**	**2240**	**5.45**	**250**	**ug/L**
91-20-3	**Naphthalene**	**881**	**8.80**	**250**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	t-Butanol (TBA)	14.5U	14.5	500	ug/L
75-85-4	**tert-amyl alcohol (TAA)**	**4350**	**50.7**	**1000**	**ug/L**
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**115J**	**3.85**	**250**	**ug/L**
108-88-3	**Toluene**	**5590**	**6.09**	**250**	**ug/L**

Sample Results

06443 MW-40

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074906
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 18:48	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	8520	8.94	750	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2220	ug/L	89	78 - 130
1868-53-7	Dibromofluoromethane	2500	2380	ug/L	95	77 - 127
2037-26-5	Toluene d8	2500	2390	ug/L	96	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2450	ug/L	98	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 20:08	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-40 dup

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074907
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 19:11	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	Benzene	601	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	11.8U	11.8	250	ug/L
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	Ethylbenzene	2880	5.45	250	ug/L
91-20-3	Naphthalene	1080	8.80	250	ug/L
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	t-Butanol (TBA)	14.5U	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	3490	50.7	1000	ug/L
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	123J	3.85	250	ug/L
108-88-3	Toluene	6120	6.09	250	ug/L

Sample Results

06443 MW-40 dup

Collect Date 11/03/2014 16:15 **GCAL ID** 21411074907
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/08/2014 19:11	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	**Xylene (total)**	**10600**	**8.94**	**750**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2230	ug/L	89	78 - 130
1868-53-7	Dibromofluoromethane	2500	2440	ug/L	98	77 - 127
2037-26-5	Toluene d8	2500	2320	ug/L	93	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2690	ug/L	108	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 20:25	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	**1,2-Dibromoethane**	**0.019**	**0.00630**	**0.010**	**ug/L**

06443 MW-42

Collect Date 11/03/2014 15:40 **GCAL ID** 21411074908
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	11/09/2014 12:48	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	**1,2-Dichloroethane**	**10.4J**	**0.581**	**25.0**	**ug/L**
71-43-2	**Benzene**	**23.6J**	**0.555**	**25.0**	**ug/L**
108-20-3	**diisopropyl Ether (DIPE)**	**58.7**	**1.18**	**25.0**	**ug/L**
64-17-5	Ethanol	625U	625	5000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	188U	188	500	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	1.17U	1.17	25.0	ug/L
100-41-4	Ethylbenzene	0.545U	0.545	25.0	ug/L
91-20-3	**Naphthalene**	**26.6**	**0.880**	**25.0**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	1.20U	1.20	25.0	ug/L
75-65-0	**t-Butanol (TBA)**	**96.8**	**1.45**	**50.0**	**ug/L**
75-85-4	**tert-amyl alcohol (TAA)**	**2090**	**5.07**	**100**	**ug/L**
762-75-4	tert-butyl formate (TBF)	2.43U	2.43	250	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**410**	**0.385**	**25.0**	**ug/L**
108-88-3	Toluene	0.609U	0.609	25.0	ug/L

Sample Results

06443 MW-42

Collect Date 11/03/2014 15:40 **GCAL ID** 21411074908
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	11/09/2014 12:48	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.894U	0.894	75.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	221	ug/L	88	78 - 130
1868-53-7	Dibromofluoromethane	250	233	ug/L	93	77 - 127
2037-26-5	Toluene d8	250	243	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	234	ug/L	94	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 20:42	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-43

Collect Date 11/03/2014 13:40 **GCAL ID** 21411074909
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 20:44	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	**Ethylbenzene**	**8.62**	**0.109**	**5.00**	**ug/L**
91-20-3	**Naphthalene**	**8.13**	**0.176**	**5.00**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	**t-Butanol (TBA)**	**2.22J**	**0.290**	**10.0**	**ug/L**
75-85-4	**tert-amyl alcohol (TAA)**	**61.5**	**1.01**	**20.0**	**ug/L**
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-43

Collect Date 11/03/2014 13:40 **GCAL ID** 21411074909
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 20:44	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	14.9J	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	44	ug/L	88	78 - 130
1868-53-7	Dibromofluoromethane	50	47.2	ug/L	94	77 - 127
2037-26-5	Toluene d8	50	50.3	ug/L	101	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.6	ug/L	97	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 20:59	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 FIELD BLANK

Collect Date 11/03/2014 17:20 **GCAL ID** 21411074910
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:10	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 FIELD BLANK

Collect Date	11/03/2014 17:20	**GCAL ID**	21411074910
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:10	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.9	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	48.6	ug/L	97	77 - 127
2037-26-5	Toluene d8	50	46.9	ug/L	94	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.5	ug/L	99	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 21:16	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-21

Collect Date	11/03/2014 17:50	**GCAL ID**	21411074911
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:07	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-21

Collect Date 11/03/2014 17:50 **GCAL ID** 21411074911
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:07	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.4	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	43.6	ug/L	87	77 - 127
2037-26-5	Toluene d8	50	49.1	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	45.5	ug/L	91	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 21:33	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-9b

Collect Date 11/04/2014 14:20 **GCAL ID** 21411074912
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:30	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	**tert-amyl alcohol (TAA)**	**70.4**	**1.01**	**20.0**	**ug/L**
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-9b

Collect Date 11/04/2014 14:20 **GCAL ID** 21411074912
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:30	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.7	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	50	46.1	ug/L	92	77 - 127
2037-26-5	Toluene d8	50	51.2	ug/L	102	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.4	ug/L	95	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 21:51	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-10R

Collect Date 11/04/2014 13:55 **GCAL ID** 21411074913
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:53	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-10R

Collect Date 11/04/2014 13:55 **GCAL ID** 21411074913
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 21:53	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.2	ug/L	82	78 - 130
1868-53-7	Dibromofluoromethane	50	46.2	ug/L	92	77 - 127
2037-26-5	Toluene d8	50	47.1	ug/L	94	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.2	ug/L	96	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 22:08	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-12R

Collect Date 11/04/2014 13:20 **GCAL ID** 21411074914
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 13:11	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
108-20-3	**diisopropyl Ether (DIPE)**	**17.9**	**0.236**	**5.00**	**ug/L**
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	**Naphthalene**	**39.7**	**0.176**	**5.00**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	**t-Butanol (TBA)**	**22.1**	**0.290**	**10.0**	**ug/L**
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**3.74J**	**0.077**	**5.00**	**ug/L**
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-12R

Collect Date 11/04/2014 13:20 **GCAL ID** 21411074914
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 13:11	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	**Xylene (total)**	**1.73J**	**0.179**	**15.0**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	43.3	ug/L	87	78 - 130
1868-53-7	Dibromofluoromethane	50	46.5	ug/L	93	77 - 127
2037-26-5	Toluene d8	50	46.1	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.6	ug/L	95	71 - 127

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	5	11/09/2014 14:47	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
71-43-2	**Benzene**	**508**	**0.555**	**25.0**	**ug/L**
75-85-4	**tert-amyl alcohol (TAA)**	**894**	**5.07**	**100**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	250	213	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	250	234	ug/L	94	77 - 127
2037-26-5	Toluene d8	250	231	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	250	257	ug/L	103	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 22:42	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-13R

Collect Date 11/04/2014 12:50 **GCAL ID** 21411074915
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 01:03	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	**Benzene**	**323**	**5.55**	**250**	**ug/L**

Sample Results

06443 MW-13R

Collect Date 11/04/2014 12:50 **GCAL ID** 21411074915
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 01:03	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
108-20-3	diisopropyl Ether (DIPE)	13.8J	11.8	250	ug/L
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	Ethylbenzene	1750	5.45	250	ug/L
91-20-3	Naphthalene	801	8.80	250	ug/L
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	t-Butanol (TBA)	14.5U	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	1380	50.7	1000	ug/L
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	60.3J	3.85	250	ug/L
108-88-3	Toluene	3670	6.09	250	ug/L
1330-20-7	Xylene (total)	11100	8.94	750	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2340	ug/L	94	78 - 130
1868-53-7	Dibromofluoromethane	2500	2420	ug/L	97	77 - 127
2037-26-5	Toluene d8	2500	2460	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2540	ug/L	102	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 22:59	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-22

Collect Date 11/04/2014 07:40 **GCAL ID** 21411074916
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 16:21	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L

Sample Results

06443 MW-22

Collect Date 11/04/2014 07:40 **GCAL ID** 21411074916
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 16:21	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41	ug/L	82	78 - 130
1868-53-7	Dibromofluoromethane	50	47.8	ug/L	96	77 - 127
2037-26-5	Toluene d8	50	46.2	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.5	ug/L	99	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/11/2014 10:30	544775	EPA 8011	1	11/13/2014 23:17	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-22d

Collect Date 11/04/2014 07:00 **GCAL ID** 21411074917
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 16:44	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-22d

Collect Date 11/04/2014 07:00 **GCAL ID** 21411074917
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 16:44	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.3	ug/L	83	78 - 130
1868-53-7	Dibromofluoromethane	50	47.2	ug/L	94	77 - 127
2037-26-5	Toluene d8	50	45.5	ug/L	91	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.9	ug/L	96	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 00:25	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-24

Collect Date 11/04/2014 11:20 **GCAL ID** 21411074918
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:08	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-24

Collect Date 11/04/2014 11:20 **GCAL ID** 21411074918
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:08	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	45.1	ug/L	90	77 - 127
2037-26-5	Toluene d8	50	45.1	ug/L	90	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	46	ug/L	92	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 00:42	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-26

Collect Date 11/04/2014 10:50 **GCAL ID** 21411074919
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	25	11/09/2014 19:49	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	2.90U	2.90	125	ug/L
71-43-2	**Benzene**	**412**	**2.78**	**125**	**ug/L**
108-20-3	diisopropyl Ether (DIPE)	5.90U	5.90	125	ug/L
64-17-5	Ethanol	3120U	3120	25000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	940U	940	2500	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	5.85U	5.85	125	ug/L
100-41-4	**Ethylbenzene**	**1650**	**2.73**	**125**	**ug/L**
91-20-3	**Naphthalene**	**577**	**4.40**	**125**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	6.00U	6.00	125	ug/L
75-65-0	t-Butanol (TBA)	7.25U	7.25	250	ug/L
75-85-4	tert-amyl alcohol (TAA)	25.3U	25.3	500	ug/L
762-75-4	tert-butyl formate (TBF)	12.2U	12.2	1250	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	1.93U	1.93	125	ug/L
108-88-3	**Toluene**	**3060**	**3.05**	**125**	**ug/L**

Sample Results

06443 MW-26

Collect Date 11/04/2014 10:50 **GCAL ID** 21411074919
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	25	11/09/2014 19:49	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	9880	4.47	375	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	1250	1060	ug/L	85	78 - 130
1868-53-7	Dibromofluoromethane	1250	1160	ug/L	93	77 - 127
2037-26-5	Toluene d8	1250	1160	ug/L	93	76 - 134
17060-07-0	1,2-Dichloroethane-d4	1250	1210	ug/L	97	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 00:59	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-27

Collect Date 11/04/2014 09:10 **GCAL ID** 21411074920
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:31	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-27

Collect Date 11/04/2014 09:10 **GCAL ID** 21411074920
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:31	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	47	ug/L	94	77 - 127
2037-26-5	Toluene d8	50	46	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.2	ug/L	94	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 01:16	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 PW-28

Collect Date 11/04/2014 10:15 **GCAL ID** 21411074921
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:54	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 PW-28

Collect Date 11/04/2014 10:15 **GCAL ID** 21411074921
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 17:54	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	40.9	ug/L	82	78 - 130
1868-53-7	Dibromofluoromethane	50	48.2	ug/L	96	77 - 127
2037-26-5	Toluene d8	50	44.9	ug/L	90	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49	ug/L	98	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 01:50	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-29

Collect Date 11/04/2014 08:15 **GCAL ID** 21411074922
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 18:17	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-29

Collect Date 11/04/2014 08:15 **GCAL ID** 21411074922
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 18:17	LBH	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	45.5	ug/L	91	77 - 127
2037-26-5	Toluene d8	50	47.4	ug/L	95	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	47.3	ug/L	95	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 02:06	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-30

Collect Date 11/04/2014 08:40 **GCAL ID** 21411074923
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 19:03	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-30

Collect Date 11/04/2014 08:40 **GCAL ID** 21411074923
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 19:03	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.7	ug/L	83	78 - 130
1868-53-7	Dibromofluoromethane	50	48.6	ug/L	97	77 - 127
2037-26-5	Toluene d8	50	48.4	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.7	ug/L	97	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 02:23	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-35

Collect Date 11/04/2014 16:00 **GCAL ID** 21411074924
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	500	11/09/2014 20:12	CEK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	58.1U	58.1	2500	ug/L
71-43-2	**Benzene**	**21800**	**55.5**	**2500**	**ug/L**
108-20-3	diisopropyl Ether (DIPE)	118U	118	2500	ug/L
64-17-5	Ethanol	62500U	62500	500000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	18800U	18800	50000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	117U	117	2500	ug/L
100-41-4	**Ethylbenzene**	**3430**	**54.5**	**2500**	**ug/L**
91-20-3	**Naphthalene**	**3180**	**88.0**	**2500**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	120U	120	2500	ug/L
75-65-0	t-Butanol (TBA)	145U	145	5000	ug/L
75-85-4	**tert-amyl alcohol (TAA)**	**17700**	**507**	**10000**	**ug/L**
762-75-4	tert-butyl formate (TBF)	243U	243	25000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	38.5U	38.5	2500	ug/L
108-88-3	**Toluene**	**42300**	**60.9**	**2500**	**ug/L**

Sample Results

06443 MW-35

Collect Date	11/04/2014 16:00	**GCAL ID**	21411074924
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	500	11/09/2014 20:12	CEK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	17500	89.4	7500	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	25000	21000	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	25000	22700	ug/L	91	77 - 127
2037-26-5	Toluene d8	25000	23000	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	25000	22900	ug/L	92	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	5	11/14/2014 12:48	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	6.19	0.032	0.050	ug/L

06443 MW-41

Collect Date	11/04/2014 12:15	**GCAL ID**	21411074925
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	200	11/09/2014 20:35	CEK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	171J	23.2	1000	ug/L
71-43-2	Benzene	21000	22.2	1000	ug/L
108-20-3	diisopropyl Ether (DIPE)	409J	47.2	1000	ug/L
64-17-5	Ethanol	25000U	25000	200000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	7520U	7520	20000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	46.8U	46.8	1000	ug/L
100-41-4	Ethylbenzene	3210	21.8	1000	ug/L
91-20-3	Naphthalene	1500	35.2	1000	ug/L
994-05-8	t-amyl methyl ether (TAME)	48.0U	48.0	1000	ug/L
75-65-0	t-Butanol (TBA)	858J	58.0	2000	ug/L
75-85-4	tert-amyl alcohol (TAA)	27400	203	4000	ug/L
762-75-4	tert-butyl formate (TBF)	97.4U	97.4	10000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	2300	15.4	1000	ug/L
108-88-3	Toluene	35500	24.4	1000	ug/L

Sample Results

06443 MW-41

Collect Date 11/04/2014 12:15 **GCAL ID** 21411074925
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	200	11/09/2014 20:35	CEK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	**Xylene (total)**	**15000**	**35.8**	**3000**	**ug/L**

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	10000	8400	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	10000	9380	ug/L	94	77 - 127
2037-26-5	Toluene d8	10000	9220	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	10000	9430	ug/L	94	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	5	11/14/2014 13:05	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	**1,2-Dibromoethane**	**13.7**	**0.032**	**0.050**	**ug/L**

06443 MW-44

Collect Date 11/04/2014 11:45 **GCAL ID** 21411074926
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 19:26	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	**Naphthalene**	**6.95**	**0.176**	**5.00**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-44

Collect Date 11/04/2014 11:45 **GCAL ID** 21411074926
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/09/2014 19:26	JCK	544711

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	41.8	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	47.8	ug/L	96	77 - 127
2037-26-5	Toluene d8	50	46	ug/L	92	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.9	ug/L	98	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 03:14	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 FIELD BLANK

Collect Date 11/04/2014 17:00 **GCAL ID** 21411074927
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:33	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 FIELD BLANK

Collect Date	11/04/2014 17:00	**GCAL ID**	21411074927
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:33	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.8	ug/L	86	78 - 130
1868-53-7	Dibromofluoromethane	50	46.8	ug/L	94	77 - 127
2037-26-5	Toluene d8	50	48.7	ug/L	97	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	48.2	ug/L	96	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 03:31	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-6

Collect Date	11/05/2014 13:30	**GCAL ID**	21411074928
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	500	11/11/2014 01:27	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	58.1U	58.1	2500	ug/L
71-43-2	Benzene	7710	55.5	2500	ug/L
108-20-3	diisopropyl Ether (DIPE)	537J	118	2500	ug/L
64-17-5	Ethanol	62500U	62500	500000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	18800U	18800	50000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	117U	117	2500	ug/L
100-41-4	Ethylbenzene	330J	54.5	2500	ug/L
91-20-3	Naphthalene	749J	88.0	2500	ug/L
994-05-8	t-amyl methyl ether (TAME)	120U	120	2500	ug/L
75-65-0	t-Butanol (TBA)	2120J	145	5000	ug/L
75-85-4	tert-amyl alcohol (TAA)	30000	507	10000	ug/L
762-75-4	tert-butyl formate (TBF)	243U	243	25000	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	19900	38.5	2500	ug/L
108-88-3	Toluene	559J	60.9	2500	ug/L

Sample Results

06443 MW-6

Collect Date 11/05/2014 13:30 **GCAL ID** 21411074928
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	500	11/11/2014 01:27	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	1260J	89.4	7500	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	25000	23200	ug/L	93	78 - 130
1868-53-7	Dibromofluoromethane	25000	23900	ug/L	96	77 - 127
2037-26-5	Toluene d8	25000	24100	ug/L	96	76 - 134
17060-07-0	1,2-Dichloroethane-d4	25000	23200	ug/L	93	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 03:48	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-15

Collect Date 11/05/2014 12:30 **GCAL ID** 21411074929
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/10/2014 23:55	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 MW-15

Collect Date 11/05/2014 12:30 **GCAL ID** 21411074929
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/10/2014 23:55	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	45.9	ug/L	92	78 - 130
1868-53-7	Dibromofluoromethane	50	50.2	ug/L	100	77 - 127
2037-26-5	Toluene d8	50	49.2	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.7	ug/L	99	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 04:05	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-38

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074930
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 01:50	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	**Benzene**	**4000**	**5.55**	**250**	**ug/L**
108-20-3	**diisopropyl Ether (DIPE)**	**43.7J**	**11.8**	**250**	**ug/L**
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	**Ethylbenzene**	**1910**	**5.45**	**250**	**ug/L**
91-20-3	**Naphthalene**	**491**	**8.80**	**250**	**ug/L**
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	**t-Butanol (TBA)**	**86.6J**	**14.5**	**500**	**ug/L**
75-85-4	**tert-amyl alcohol (TAA)**	**4640**	**50.7**	**1000**	**ug/L**
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	**tert-Butyl methyl ether (MTBE)**	**268**	**3.85**	**250**	**ug/L**
108-88-3	**Toluene**	**2810**	**6.09**	**250**	**ug/L**

Sample Results

06443 MW-38

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074930
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 01:50	CJR	544753

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	6310	8.94	750	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2300	ug/L	92	78 - 130
1868-53-7	Dibromofluoromethane	2500	2440	ug/L	98	77 - 127
2037-26-5	Toluene d8	2500	2370	ug/L	95	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2590	ug/L	104	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 04:21	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 MW-38DUP

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074931
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 15:14	CJR	544857

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	5.81U	5.81	250	ug/L
71-43-2	Benzene	3990	5.55	250	ug/L
108-20-3	diisopropyl Ether (DIPE)	44.5J	11.8	250	ug/L
64-17-5	Ethanol	6250U	6250	50000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	1880U	1880	5000	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	11.7U	11.7	250	ug/L
100-41-4	Ethylbenzene	1470	5.45	250	ug/L
91-20-3	Naphthalene	500	8.80	250	ug/L
994-05-8	t-amyl methyl ether (TAME)	12.0U	12.0	250	ug/L
75-65-0	t-Butanol (TBA)	76.1J	14.5	500	ug/L
75-85-4	tert-amyl alcohol (TAA)	5360	50.7	1000	ug/L
762-75-4	tert-butyl formate (TBF)	24.3U	24.3	2500	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	281	3.85	250	ug/L
108-88-3	Toluene	2310	6.09	250	ug/L

Sample Results

06443 MW-38DUP

Collect Date 11/05/2014 15:00 **GCAL ID** 21411074931
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	50	11/11/2014 15:14	CJR	544857

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	5060	8.94	750	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	2500	2510	ug/L	100	78 - 130
1868-53-7	Dibromofluoromethane	2500	2530	ug/L	101	77 - 127
2037-26-5	Toluene d8	2500	2440	ug/L	98	76 - 134
17060-07-0	1,2-Dichloroethane-d4	2500	2650	ug/L	106	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 04:55	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 FIELD BLANK

Collect Date 11/05/2014 15:30 **GCAL ID** 21411074932
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:56	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 FIELD BLANK

Collect Date 11/05/2014 15:30 **GCAL ID** 21411074932
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 14:56	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42.1	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	51	ug/L	102	77 - 127
2037-26-5	Toluene d8	50	48.1	ug/L	96	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	50.3	ug/L	101	71 - 127

EPA 8011

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
11/12/2014 13:00	544907	EPA 8011	1	11/14/2014 05:12	TLS	545133

CAS#	Parameter	Result	MDL	LOQ	Units
106-93-4	1,2-Dibromoethane	0.00630U	0.00630	0.010	ug/L

06443 TRIP BLANK

Collect Date 11/03/2014 00:00 **GCAL ID** 21411074933
Receive Date 11/07/2014 09:40 **Matrix** Water

EPA 8260B

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 15:19	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
107-06-2	1,2-Dichloroethane	0.116U	0.116	5.00	ug/L
71-43-2	Benzene	0.111U	0.111	5.00	ug/L
108-20-3	diisopropyl Ether (DIPE)	0.236U	0.236	5.00	ug/L
64-17-5	Ethanol	125U	125	1000	ug/L
624-95-3	Ethyl tert-butanol (ETBA)	37.6U	37.6	100	ug/L
637-92-3	Ethyl tert-butyl ether (ETBE)	0.234U	0.234	5.00	ug/L
100-41-4	Ethylbenzene	0.109U	0.109	5.00	ug/L
91-20-3	Naphthalene	0.176U	0.176	5.00	ug/L
994-05-8	t-amyl methyl ether (TAME)	0.240U	0.240	5.00	ug/L
75-65-0	t-Butanol (TBA)	0.290U	0.290	10.0	ug/L
75-85-4	tert-amyl alcohol (TAA)	1.01U	1.01	20.0	ug/L
762-75-4	tert-butyl formate (TBF)	0.487U	0.487	50.0	ug/L
1634-04-4	tert-Butyl methyl ether (MTBE)	0.077U	0.077	5.00	ug/L
108-88-3	Toluene	0.122U	0.122	5.00	ug/L

Sample Results

06443 TRIP BLANK

Collect Date	11/03/2014 00:00	**GCAL ID**	21411074933
Receive Date	11/07/2014 09:40	**Matrix**	Water

EPA 8260B (Continued)

Prep Date	Prep Batch	Prep Method	Dilution	Analysis Date	By	Analytical Batch
NA	NA	NA	1	11/08/2014 15:19	LBH	544695

CAS#	Parameter	Result	MDL	LOQ	Units
1330-20-7	Xylene (total)	0.179U	0.179	15.0	ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
460-00-4	4-Bromofluorobenzene	50	42	ug/L	84	78 - 130
1868-53-7	Dibromofluoromethane	50	49.2	ug/L	98	77 - 127
2037-26-5	Toluene d8	50	46.9	ug/L	94	76 - 134
17060-07-0	1,2-Dichloroethane-d4	50	49.9	ug/L	100	71 - 127

GC/MS Volatiles Quality Control Summary

Analytical Batch 544695	Client ID	MB544695	LCS544695	LCSD544695
	GCAL ID	1378947	1378948	1378949
	Sample Type	MB	LCS	LCSD
	Prep Date	NA	NA	NA
	Analysis Date	11/08/2014 13:47	11/08/2014 12:15	11/08/2014 12:38
	Matrix	Water	Water	Water

EPA 8260B		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,2-Dichloroethane	107-06-2	0.116U	0.116	50.0	50.5	101	71 - 129	50.0	46.2	92	9	50
Benzene	71-43-2	0.111U	0.111	50.0	59.1	118	70 - 129	50.0	56.5	113	4	50
diisopropyl Ether (DIPE)	108-20-3	0.236U	0.236	50.0	51.7	103	70 - 130	50.0	47.8	96	8	50
Ethanol	64-17-5	125U	125	25200	29400	117	70 - 130	25200	30600	121	4	50
Ethyl tert-butanol (ETBA)	624-95-3	37.6U	37.6	2550	2920	115	70 - 130	2550	2950	116	1	50
Ethyl tert-butyl ether (ETBE)	637-92-3	0.234U	0.234	50.0	49.7	99	70 - 130	50.0	50.0	100	1	50
Ethylbenzene	100-41-4	0.109U	0.109	50.0	52.5	105	74 - 126	50.0	46.3	93	13	50
m,p-Xylene	136777-61-2	0.123U	0.123	100	107	107	74 - 126	100	94.3	94	13	50
Naphthalene	91-20-3	0.176U	0.176	50.0	49.4	99	57 - 138	50.0	50.2	100	2	50
o-Xylene	95-47-6	0.055U	0.055	50.0	51.0	102	73 - 130	50.0	43.5	87	16	50
t-amyl methyl ether (TAME)	994-05-8	0.240U	0.240	50.0	54.1	108	70 - 130	50.0	52.6	105	3	50
t-Butanol (TBA)	75-65-0	0.290U	0.290	50.0	43.3	87	60 - 140	50.0	45.0	90	4	50
tert-amyl alcohol (TAA)	75-85-4	1.01U	1.01	200	191	96	70 - 130	200	208	104	9	50
tert-butyl formate (TBF)	762-75-4	0.487U	0.487	50.0	53.2	106	70 - 130	50.0	49.3	99	8	50
tert-Butyl methyl ether (MTBE)	1634-04-4	0.077U	0.077	50.0	56.5	113	71 - 125	50.0	53.3	107	6	50
Toluene	108-88-3	0.122U	0.122	50.0	55.9	112	72 - 120	50.0	50.4	101	10	50
Xylene (total)	1330-20-7	0.179U	0.179	150	158	105	74 - 127	150	138	92	14	50
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	48.6	97	50	46.9	94	71 - 127	50	50.6	101	8	NA
4-Bromofluorobenzene	460-00-4	43.4	87	50	47.1	94	78 - 130	50	45.2	90	4	NA
Dibromofluoromethane	1868-53-7	47.3	95	50	45.8	92	77 - 127	50	47.6	95	4	NA
Toluene d8	2037-26-5	48.9	98	50	51.9	104	76 - 134	50	46.9	94	10	NA

Analytical Batch 544711	Client ID	MB544711	LCS544711	LCSD544711
	GCAL ID	1379002	1379003	1379004
	Sample Type	MB	LCS	LCSD
	Prep Date	NA	NA	NA
	Analysis Date	11/09/2014 11:38	11/09/2014 10:05	11/09/2014 10:28
	Matrix	Water	Water	Water

EPA 8260B		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,2-Dichloroethane	107-06-2	0.116U	0.116	50.0	47.6	95	71 - 129	50.0	49.4	99	4	50
Benzene	71-43-2	0.111U	0.111	50.0	57.1	114	70 - 129	50.0	58.4	117	2	50
diisopropyl Ether (DIPE)	108-20-3	0.236U	0.236	50.0	50.5	101	70 - 130	50.0	53.3	107	5	50
Ethanol	64-17-5	125U	125	25200	28400	113	70 - 130	25200	30100	119	6	50
Ethyl tert-butanol (ETBA)	624-95-3	37.6U	37.6	2550	2310	91	70 - 130	2550	2500	98	8	50
Ethyl tert-butyl ether (ETBE)	637-92-3	0.234U	0.234	50.0	51.6	103	70 - 130	50.0	49.9	100	3	50
Ethylbenzene	100-41-4	0.109U	0.109	50.0	46.4	93	74 - 126	50.0	46.1	92	1	50
m,p-Xylene	136777-61-2	0.123U	0.123	100	92.4	92	74 - 126	100	91.1	91	1	50
Naphthalene	91-20-3	0.176U	0.176	50.0	42.5	85	57 - 138	50.0	44.2	88	4	50
o-Xylene	95-47-6	0.055U	0.055	50.0	45.8	92	73 - 130	50.0	43.2	86	6	50
t-amyl methyl ether (TAME)	994-05-8	0.240U	0.240	50.0	51.9	104	70 - 130	50.0	52.6	105	1	50
t-Butanol (TBA)	75-65-0	0.290U	0.290	50.0	48.2	96	60 - 140	50.0	49.6	99	3	50
tert-amyl alcohol (TAA)	75-85-4	1.01U	1.01	200	176	88	70 - 130	200	195	98	10	50
tert-butyl formate (TBF)	762-75-4	0.487U	0.487	50.0	45.6	91	70 - 130	50.0	45.7	91	0	50
tert-Butyl methyl ether (MTBE)	1634-04-4	0.077U	0.077	50.0	52.3	105	71 - 125	50.0	56.9	114	8	50
Toluene	108-88-3	0.122U	0.122	50.0	51.6	103	72 - 120	50.0	48.8	98	6	50
Xylene (total)	1330-20-7	0.179U	0.179	150	138	92	74 - 127	150	134	89	3	50
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	51.1	102	50	48.3	97	71 - 127	50	48.1	96	0	NA
4-Bromofluorobenzene	460-00-4	41.2	82	50	44.1	88	78 - 130	50	43.5	87	1	NA
Dibromofluoromethane	1868-53-7	49.4	99	50	47.3	95	77 - 127	50	47.4	95	0	NA
Toluene d8	2037-26-5	44.8	90	50	46.6	93	76 - 134	50	45.3	91	3	NA

GC/MS Volatiles Quality Control Summary

Analytical Batch 544753	Client ID	MB544753		LCS544753			
	GCAL ID	1379161		1379162			
	Sample Type	MB		LCS			
	Prep Date	NA		NA			
	Analysis Date	11/10/2014 23:32		11/10/2014 21:58			
	Matrix	Water		Water			
EPA 8260B		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R
1,2-Dichloroethane	107-06-2	0.116U	0.116	50.0	45.8	92	71 - 129
Benzene	71-43-2	0.111U	0.111	50.0	45.7	91	70 - 129
diisopropyl Ether (DIPE)	108-20-3	0.236U	0.236	50.0	48.6	97	70 - 130
Ethanol	64-17-5	125U	125	25200	18400	73	70 - 130
Ethyl tert-butanol (ETBA)	624-95-3	37.6U	37.6	2550	1980	78	70 - 130
Ethyl tert-butyl ether (ETBE)	637-92-3	0.234U	0.234	50.0	47.6	95	70 - 130
Ethylbenzene	100-41-4	0.109U	0.109	50.0	47.5	95	74 - 126
m,p-Xylene	136777-61-2	0.123U	0.123	100	95.7	96	74 - 126
Naphthalene	91-20-3	0.176U	0.176	50.0	43.3	87	57 - 138
o-Xylene	95-47-6	0.055U	0.055	50.0	47.9	96	73 - 130
t-amyl methyl ether (TAME)	994-05-8	0.240U	0.240	50.0	45.2	90	70 - 130
t-Butanol (TBA)	75-65-0	0.290U	0.290	50.0	47.2	94	60 - 140
tert-amyl alcohol (TAA)	75-85-4	1.01U	1.01	200	173	87	70 - 130
tert-butyl formate (TBF)	762-75-4	0.487U	0.487	50.0	47.4	95	70 - 130
tert-Butyl methyl ether (MTBE)	1634-04-4	0.077U	0.077	50.0	47.8	96	71 - 125
Toluene	108-88-3	0.122U	0.122	50.0	46.2	92	72 - 120
Xylene (total)	1330-20-7	0.179U	0.179	150	144	96	74 - 127
Surrogate							
1,2-Dichloroethane-d4	17060-07-0	46.8	94	50	49	98	71 - 127
4-Bromofluorobenzene	460-00-4	47.1	94	50	53.1	106	78 - 130
Dibromofluoromethane	1868-53-7	48.1	96	50	51.3	103	77 - 127
Toluene d8	2037-26-5	47.2	94	50	49.1	98	76 - 134

Analytical Batch 544857	Client ID	MB544857		LCS544857				LCSD544857				
	GCAL ID	1379586		1379587				1379588				
	Sample Type	MB		LCS				LCSD				
	Prep Date	NA		NA				NA				
	Analysis Date	11/11/2014 13:17		11/11/2014 11:14				11/11/2014 11:50				
	Matrix	Water		Water				Water				
EPA 8260B		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,2-Dichloroethane	107-06-2	0.116U	0.116	50.0	49.0	98	71 - 129	50.0	46.0	92	6	50
Benzene	71-43-2	0.111U	0.111	50.0	47.2	94	70 - 129	50.0	46.3	93	2	50
diisopropyl Ether (DIPE)	108-20-3	0.236U	0.236	50.0	48.6	97	70 - 130	50.0	43.6	87	11	50
Ethanol	64-17-5	125U	125	25200	24200	96	70 - 130	25200	21500	85	12	50
Ethyl tert-butanol (ETBA)	624-95-3	37.6U	37.6	2550	2160	85	70 - 130	2550	1860	73	15	50
Ethyl tert-butyl ether (ETBE)	637-92-3	0.234U	0.234	50.0	48.0	96	70 - 130	50.0	43.4	87	10	50
Ethylbenzene	100-41-4	0.109U	0.109	50.0	44.5	89	74 - 126	50.0	45.1	90	1	50
m,p-Xylene	136777-61-2	0.123U	0.123	100	86.2	86	74 - 126	100	89.4	89	4	50
Naphthalene	91-20-3	0.176U	0.176	50.0	43.0	86	57 - 138	50.0	37.2	74	14	50
o-Xylene	95-47-6	0.055U	0.055	50.0	45.2	90	73 - 130	50.0	46.1	92	2	50
t-amyl methyl ether (TAME)	994-05-8	0.240U	0.240	50.0	46.3	93	70 - 130	50.0	45.9	92	1	50
t-Butanol (TBA)	75-65-0	0.290U	0.290	50.0	51.6	103	60 - 140	50.0	49.8	100	4	50
tert-amyl alcohol (TAA)	75-85-4	1.01U	1.01	200	188	94	70 - 130	200	156	78	19	50
tert-butyl formate (TBF)	762-75-4	0.487U	0.487	50.0	50.9	102	70 - 130	50.0	45.0	90	12	50
tert-Butyl methyl ether (MTBE)	1634-04-4	0.077U	0.077	50.0	47.6	95	71 - 125	50.0	46.6	93	2	50
Toluene	108-88-3	0.122U	0.122	50.0	43.6	87	72 - 120	50.0	43.8	88	1	50
Xylene (total)	1330-20-7	0.179U	0.179	150	131	87	74 - 127	150	135	90	3	50
Surrogate												
1,2-Dichloroethane-d4	17060-07-0	49.4	99	50	53.4	107	71 - 127	50	49.7	99	7	NA
4-Bromofluorobenzene	460-00-4	48.7	97	50	54.7	109	78 - 130	50	53.9	108	1	NA
Dibromofluoromethane	1868-53-7	48.9	98	50	51.1	102	77 - 127	50	50.4	101	1	NA
Toluene d8	2037-26-5	45.2	90	50	50.2	100	76 - 134	50	47.2	94	6	NA

GC Semi-Volatiles Quality Control Summary

Analytical Batch	Client ID	MB544775		LCS544775				LCSD544775				
545133	GCAL ID	1379226		1379227				1379228				
Prep Batch	Sample Type	MB		LCS				LCSD				
544775	Prep Date	11/11/2014 10:30		11/11/2014 10:30				11/11/2014 10:30				
Prep Method	Analysis Date	11/13/2014 17:34		11/13/2014 17:51				11/13/2014 18:08				
EPA 8011	Matrix	Water		Water				Water				
EPA 8011		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,2-Dibromoethane	106-93-4	0.00630U	0.00630	0.267	0.319	120	55 - 141	0.267	0.313	117	2	40

Analytical Batch	Client ID	MB544907		LCS544907				LCSD544907				
545133	GCAL ID	1379860		1379861				1379862				
Prep Batch	Sample Type	MB		LCS				LCSD				
544907	Prep Date	11/12/2014 13:00		11/12/2014 13:00				11/12/2014 13:00				
Prep Method	Analysis Date	11/13/2014 23:34		11/13/2014 23:51				11/14/2014 00:08				
EPA 8011	Matrix	Water		Water				Water				
EPA 8011		Units Result	ug/L MDL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
1,2-Dibromoethane	106-93-4	0.00630U	0.00630	0.264	0.297	112	55 - 141	0.268	0.335	125	12	40

LAB USE ONLY

Access Analytical - Chain of Custody Record

Sales Order #

PO #

Access Quote #

Project Work Order #

Laboratory ID:

Company Name: TERRACON

Report To: REGAN NORRIS

Address: 521 Clemson Rd

City: Columbia State: SC Zip: 29229

Phone: 803 749 9000 Fax: 803 749 9000

Email: RWNORRIS@TERRACON.COM

Project ID: SC-576

Sampled By: AKRE

Preservative: (*see codes) 1 1

Container Type: (*see codes) G G

REQUESTED LAB ANALYSIS: BlexNaphMtbeDxAOx, EDb

ACCESS ANALYTICAL, INC.

7478 Carlisle Street
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303

www.axs-inc.com

*Preservative Codes (place corresponding # in block above analysis field): 0 = None, 1 = HCL, 2 = HNO_3, 3 = H_2SO_4, 4 = NaOH, 5 = $Na_2S_2O_3$, 6 = Method 5035 set w/ $NaHSO_4$ & CH_3OH, 7 = NaOH/ZnOAC, 8 = H_3PO_4

*Matrix Codes (place corresponding code in matrix column): GW = ground water, WW = waste water, DW = drinking water, S = soil, SL = sludge, A = air, IW = industrial waste, WO = waste oil, OT = other (specify in comments section)

*Program Area Codes: CWA = Clean Water Act (for wastewaters), SDWA = Safe Drinking Water Act (for drinking waters), SHW = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

*Container Type: G = Glass, P = Plastic

Sample ID/Description	Date Collected:	Time Collected:	Type: (grab or composite)	Matrix: (see codes)	Program Area (see codes)	TOTAL # of containers	# of containers collected per analysis	BlexNaphMtbeDxAOx	EDb	NOTES / COMMENTS (if sample is a composite please use space below to note start/finish times & dates)
MW-19R 06443	11.3.14	1650	G	GW	Eng	4		2	2	1
PW-31 06443	11.3.14	1300	G	GW	Eng	4		2	2	2
MW-34 06443	11.3.14	1510	G	GW	Eng	4		2	2	3
MW-34d 06443	11.3.14	1440	G	GW	Eng	4		2	2	4
MW-37 06443	11.3.14	1720	G	GW	Eng	4		2	2	5
MW-40 06443	11.3.14	1615	G	GW	Eng	4		2	2	6
MW-40 dup 06443	11.3.14	1615	G	GW	Eng	4		2	2	7
MW-42 06443	11.3.14	1540	G	GW	Eng	4		2	2	8
MW-43 06443	11.3.14	1340	G	GW	Eng	4		2	2	9
Fieldblank 06443	11.3.14	1720	G	OT	Eng	4		2	2	10

Client ID: 4565 - Access Analytical
SDG: 214110749
Due Date: 11/14/14

Turnaround Time:

X Standard
RUSH*
*Date Required:
(For rush work, results emailed/faxed by end of business day on date required)

Project Location:

X SC
NC
Other
(specify)

Relinquished By:	Received By:	Date (mm-dd-yy)	Time (24HR)	Samples Rec'd on Ice	Sample Temp. Upon Receipt (°C):	
[signature]	[signature]	11-6-14	1443	Y N	(°C)	(N/A)
[signature]	FedEx	11-6-14	1700	Y N	(°C)	(N/A)
FedEx	[signature]	11/7/14	940	Y N	2.5 E24 ~~2.4~~ (°C)	(N/A)
5035 7504 4129				Y N	5.7 (°C)	(N/A)

See Reverse for Terms and Conditions

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

Pg 1 of 4

LAB USE ONLY

Access Analytical - Chain of Custody Record

Sales Order #______ PO #______ Access Quote #______

Project Work Order #______

Laboratory ID:______

ACCESS ANALYTICAL, INC.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
www.axs-inc.com

Company Name: TERRACON

Report To: REGAN NORRIS

Address: 521 Clemson Rd

City: Columbia State: SC Zip: 29229

Phone: 803 741 9000 Fax: 803 741 9900

Email: RWNORRIS @ TERRACON.COM

Project ID: SC-576

Sampled By: AKB+

Preservative (*see codes): 1 | 1

Container Type (*see codes): G | G

↓ REQUESTED LAB ANALYSIS: ↓ BTEX/NAPH MTBE DCA; EDB

*Preservative Codes (place corresponding # in block above analysis field): 0 = None, 1 = HCL, 2 = HNO_3, 3 = H_2SO_4, 4 = NaOH, 5 = $Na_2S_2O_3$, 6 = Method 5035 set w/ $NaHSO_4$ & CH_3OH, 7 = NaOH/ZnOAC, 8 = H_3PO_4

*Matrix Codes (place corresponding code in matrix column): GW = ground water, WW = waste water, DW = drinking water, S = soil, SL = sludge, A = air, IW = industrial waste, WO = waste oil, OT = other (specify in comments section)

*Program Area Codes: CWA = Clean Water Act (for wastewaters), SDWA = Safe Drinking Water Act (for drinking waters), SHW = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

*Container Type: G = Glass, P = Plastic

Sample ID/Description	Date Collected:	Time Collected:	Type: (grab or composite)	Matrix: (see codes)	Program Area (see codes)	TOTAL # of containers	BTEX/NAPH MTBE DCA	EDB	NOTES / COMMENTS (if sample is a composite please use space below to note start/finish times & dates)
MW-21 06443	11.3.14	1750	G	GW	Env	4	2	2	11
MW-9b 06443	11.4.14	1420	G	GW	Env	4	2	2	12
MW-10R 06443	11.4.14	1355	G	GW	Env	4	2	2	14 13
MW-12R 06443	11.4.14	1320	G	GW	Env	4	2	2	13 14
MW-13R 06443	11.4.14	1250	G	GW	Env	4	2	2	14 15
MW-22 06443	11.4.14	0740	G	GW	Env	4	2	2	15 16
MW-22d 06443	11.4.14	0700	G	GW	Env	4	2	2	16 17
MW-24 06443	11.4.14	1120	G	GW	Env	4	2	2	17 18
MW-26 06443	11.4.14	1050	G	GW	Env	4	2	2	18 19
MW-27 06443	11.4.14	0910	G	GW	Env	4	2	2	19 20

Client ID: 4565 - Access Analytical
SDG: 214110749
Due Date: 11/14/14

Turnaround Time: X Standard ___ RUSH*
*Date Required:______
(For rush work, results emailed/faxed by end of business day on date required)

Project Location: X SC ___ NC ___ Other (specify)______

Relinquished By:	Received By:	Date (mm-dd-yy)	Time (24HR)	Samples Rec'd on Ice	Sample Temp. Upon Receipt (°C):	
[signature]	[signature]	11-6-14	1443	___Y ___N	___(°C)	___(N/A)
[signature]	FedEx	11-6-14	1200	___Y ___N	___(°C)	___(N/A)
FedEx	[signature]	11/7/14	940	___Y ___N	___(°C)	___(N/A)
				___Y ___N	___(°C)	___(N/A)

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Pink Copy - Client Copy

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LAB USE ONLY

Access Analytical - Chain of Custody Record

Project Work Order #: _____

Sales Order #: _____ PO #: _____ Access Quote #: _____ Laboratory ID: _____

Company Name: TERRACON

Report To: REGAN NORRIS

Address: 521 Clemson Rd

City: Columbia State: SC Zip: 29229

Phone: 8037449900 Fax: 8037449900

Email: RWNORRIS@TERRACON.COM

Project ID: SC-576

Sampled By: AKRE

Sample ID/Description	Date Collected:	Time Collected:	Type: (grab or composite)	Matrix: (see codes)	Program Area: (see codes)	TOTAL # of containers	↓ REQUESTED LAB ANALYSIS: ↓ Preservative: (*see codes)	Container Type: (*see codes)
							1	1
							E	P
PW-28 06443	11.4.14	1015	G	GW	CWA	4	2	2
MW-29 06443	11.4.14	0858	G	GW	CWA	4	2	2
MW-30 06443	11.4.14	0840	G	GW	CWA	4	2	2
MW-35 06443	11.4.14	1600	G	GW	CWA	4	2	2
MW-41 06443	11.4.14	1215	G	GW	CWA	4	2	2
MW-44 06443	11.4.14	1145	G	GW	CWA	4	2	2
FIELD BLANK 06443	11.4.14	1700	G	QC	CWA	4	2	2
MW-6 06443	11.5.14	1330	G	GW	CWA	4	2	2
MW-16 06443	11.5.14	1230	G	GW	CWA	4	2	2
MW-38 06443	11.5.14	1500	G	GW	CWA	4	2	2

Client ID: 4565 - Access Analytical
SDG: 214110749
Due Date: 11/14/14

ACCESS ANALYTICAL, INC.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
www.axs-inc.com

*Preservative Codes (place corresponding # in block above analysis field): 0 = None, 1 = HCL, 2 = HNO_3, 3 = H_2SO_4, 4 = NaOH, 5 = $NaSiO_3$, 6 = Method 5035 set w/ $NaHSO_4$ & CH_3OH, 7 = NaOH/ZnOAC, 8 = H_3PO_4

*Matrix Codes (place corresponding code in matrix column): GW = ground water, WW = waste water, DW = drinking water, S = soil, SL = sludge, A = air, IW = industrial waste, WO = waste oil, OT = other (specify in comments section)

*Program Area Codes: CWA = Clean Water Act (for wastewaters), SDWA = Safe Drinking Water Act (for drinking waters), SHW = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

*Container Type: G = Glass, P = Plastic

NOTES / COMMENTS
(if sample is a composite please use space below to note start/finish times & dates)

~~20~~ 21
~~21~~ 22
~~22~~ 23
~~23~~ 24
24 25
~~25~~ 26
~~26~~ 27
~~27~~ 28
~~28~~ 29
~~29~~ 30

Turnaround Time:
__ Standard
__ RUSH*
*Date Required: _____
(For rush work, results emailed/faxed by end of business day on date required)

Project Location:
__ SC
__ NC
__ Other
(specify) _____

Relinquished By:	Received By:	Date (mm-dd-yy)	Time (24HR)	Samples Rec'd on Ice	Sample Temp. Upon Receipt (°C):	
		11-6-14	1443	__Y __N	____(°C)	____(N/A)
	FedEx	11-6-14	1700	__Y __N	____(°C)	____(N/A)
FedEx		11/7/14	940	__Y __N	____(°C)	____(N/A)
				__Y __N	____(°C)	____(N/A)

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LAB USE ONLY

Access Analytical – Chain of Custody Record

Sales Order # _____ PO # _____ Access Quote # _____ Project Work Order # _____ Laboratory ID: _____

Company Name: TERRACON
Report To: REGAN NORRIS
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Phone: 803 741 9000 Fax: 803 741 9900
Email: RW NORRIS @ TERRACON.COM
Project ID: SC-576
Sampled By: AKRE

Preservative (*see codes): 1 1
Container Type (*see codes): G G

↓ REQUESTED LAB ANALYSIS: ↓ BTEX Naphthalene EDB

Sample ID/Description	Date Collected:	Time Collected:	Type: (Grab or composite)	Matrix (see codes)	Program Area (see codes)	TOTAL # of containers	# of containers collected	per analysis	
MW-38 Dup 06443	11.5.14	1500	G	GW	CWA	4	2	2	31
Field Blank 06443	11.5.14	1530	G	OT	Equip	4	2	2	32
Trip Blank 06443				OT	Equip	1	1		lab prepped 33

Client ID: 4565 - Access Analytical
SDG: 214110749
Due Date: 11/14/14

ACCESS ANALYTICAL, INC.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
www.axs-inc.com

*Preservative Codes (place corresponding # in block above analysis field): 0 = None, 1 = HCL, 2 = HNO_3, 3 = H_2SO_4, 4 = NaOH, 5 = Na_2SO_3, 6 = Method 5035 set w/ $NaHSO_4$ & CH_3OH, 7 = NaOH/ZnOAC, 8 = H_3PO_4

*Matrix Codes (place corresponding code in matrix column): GW = ground water, WW = waste water, DW = drinking water, S = soil, SL = sludge, A = air, IW = industrial waste, WO = waste oil, OT = other (specify in comments section)

*Program Area Codes: CWA = Clean Water Act (for wastewaters), SDWA = Safe Drinking Water Act (for drinking waters), SHW = Solid and Hazardous Wastes (for soils, ground waters and waste samples)

*Container Type: G = Glass, P = Plastic

NOTES / COMMENTS
(if sample is a composite please see space below to note start/finish times & dates)

Turnaround Time:
X Standard
__ RUSH*
*Date Required: _____
(For rush work, results emailed/faxed by end of business day on date required)

Project Location:
X SC
__ NC
__ Other
(specify) _____

Relinquished By:	Received By:	Date (mm-dd-yy)	Time (24HR)	Samples Rec'd on Ice	Sample Temp. Upon Receipt (°C):	
[signature]	[signature]	11-6-14	1443	__Y __N	____(°C)	____(N/A)
[signature]	FedEx	11-6-14	1720	__Y __N	____(°C)	____(N/A)
FedEx	[signature]	11/7/14	940	__Y __N	____(°C)	____(N/A)
				__Y __N	____(°C)	____(N/A)

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GCAL ANALYTICAL LABORATORIES, LLC

SAMPLE RECEIVING CHECKLIST

214110749

SAMPLE DELIVERY GROUP 214110749	
Client 4565 - Access Analytical	**Transport Method** FEDEX
Profile Number 78454	**Received By** *Saucier, Charlotte M.*
Line Item(s) 2 - Water BTEX/MTBE/Naph/12DCA/OXY	**Receive Date(s)** 11/07/14

CHECKLIST	YES	NO	NA
Were all samples received using proper thermal preservation?	☑	☐	☐
When used, were all custody seals intact?	☑	☐	☐
Were all samples received in proper containers?	☑	☐	☐
Were all samples received using proper chemical preservation?	☑	☐	☐
Was preservative added to any container at the lab?	☐	☑	☐
Were all containers received in good condition?	☑	☐	☐
Were all VOA vials received with no head space?	☑	☐	☐
Do all sample labels match the Chain of Custody?	☑	☐	☐
Did the Chain of Custody list the sampling technician?	☑	☐	☐
Was the COC maintained i.e. all signatures, dates and time of receipt included?	☑	☐	☐

COOLERS

Airbill	Thermometer ID: E24	Temp(°C)
5035 7504 4129		2.5
		5.7

DISCREPANCIES

None

LAB PRESERVATIONS

None

NOTES

Revision 1.4

Page 1 of 1

APPENDIX G

Disposal Manifests

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
UST#: 04593	1	803-926-0089	2 0 3 4 4

GENERATOR

5. Generator's Name and Mailing Address: Crown Central LLC
P.O. Box 1168
Baltimore, MD 21203-
803- 741-9000
Generator's Phone:

Generator's Site Address (if different than mailing address) – SC-576: Crown Central LLC
201 N. Mine Street
McCormick, SC

6. Transporter 1 Company Name: Terracon — U.S. EPA ID Number:

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address: Regulatory Solutions, Inc.
40 Pascon Court
Gaston, SC, 29053-
803-926-0089
Facility's Phone: — U.S. EPA ID Number:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	NON-RCRA, NON-DOT REGULATED MATERIAL 10741 - 1173	1	T T	224	g	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Neil Akre — Signature: [signature] — Month: 11 Day: 7 Year: 14

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Neil Akre — Signature: [signature] — Month: 11 Day: 7 Year: 14

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number:
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Amy McKenzie — Signature: [signature] — Month: 11 Day: 7 Year: 14

APPENDIX K

SCDHEC QAPP Contractors Checklist

CONTRACTOR CHECKLIST

Item #	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?	X		
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?	X		
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed?	X		
21	Have the groundwater sampling dates and groundwater measurements been provided?	X		
22	Has the purging methodology been detailed?	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete?	X		
24	If free-product is present, has the thickness been provided?	X		
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X

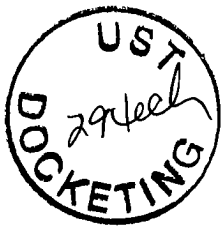
27	Does the report include a brief discussion of the fate & transport models used?			X
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?	X		
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the current and historical laboratory data been provided in tabular format?	X		
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)	X		
40	Has the site potentiometric map been provided? (Figure 5)	X		
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? (Appendix G)	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Explanation for missing or incomplete information

D H E C
PROMOTE PROTECT PROSPER
W Marshall Taylor Jr., Acting Director
Promoting and protecting the health of the public and the environment

MR JIM JANSON
CROWN CENTRAL LLC.
PO BOX 1168
BALTIMORE MD 21203-1168

FEB 2 5 2015



Re: Corrective Action Options
One Stop: 201 N Mine Street, McCormick, SC
UST Permit # **06443**
Release reported December 13, 1989
Groundwater Monitoring Report received February 3, 2014
McCormick County

Dear Mr. Janson,

The Underground Storage Tank (UST) Management Division (Division) of the South Carolina Department of Health and Environmental Control (Agency) has reviewed the referenced report submitted by Terracon, Inc. on your behalf. The report indicates that active corrective action is necessary at the site to mitigate petroleum impact and ensure that there is no detrimental exposure to human health or the environment.

Funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account will soon be available for active corrective action. The selected technology must reduce the petroleum chemicals of concern (CoC) concentrations to site-specific target levels (SSTLs) determined by the Division.

The SUPERB Site Rehabilitation and Fund Access Regulations R.61-98 require the UST owner/operator to develop and implement a reasonable, cost-effective corrective action to be performed by an Agency-certified site rehabilitation contractor. As the owner/operator for the release reported on December 13, 1989, you may choose one of two options as to how to proceed with this requirement: state lead or owner/operator lead.

State Lead Option:

- If you choose the state lead option, the Agency will procure a certified site rehabilitation contractor to perform corrective action on your behalf. The Agency will enter into an enforceable contract with the awarded contractor. As long as you do not interfere with or prohibit the work at your site, you will not be responsible in the event the state selected contractor does not perform appropriately or does not make satisfactory progress towards achieving the established corrective action goals. To utilize the state lead option, please sign and return the applicable Permission and Right-of-Entry forms within 15 days of the date of this letter.

Owner/Operator Lead Option:

- If you select the owner/operator lead option, you will be required to select a contractor to perform the corrective action. In order to assist you in determining the clean-up technology, time frame, clean-up levels, and associated costs, the Agency will prepare a technical specification package and provide you copies to send to contractors of your choice. In addition, the Agency will announce the request for solicitations in the South Carolina Business Opportunities, a bi-weekly state government publication, to ensure that an adequate solicitation response is obtained so that a fair and competitive price can be established. This announcement will clearly indicate that you will select the contractor to implement the corrective action.
- Compensation to the contractor will be from the SUPERB Account, but you may have the obligation to pay your selected contractor for any costs not approved by the Agency.
- The Division strongly suggests that a written contract between you and the selected contractor be developed following the completion of the solicitation process. The parties to this contract would be you and the contractor you choose; the Agency would not be a party to this contract. The Agency's function would be to monitor and ensure progress of corrective action activities.
- If the contractor you select does not or cannot complete the required activities, you will be required to find another certified contractor to complete the required activities for the remainder of the existing financial approval amount. No additional funding from the SUPERB Account may be allowed. Under R.61-92, Part 280: Underground Storage Tank Control Regulations, you as the owner/operator are ultimately responsible to the Agency for the actions of your contractor. The Agency will pursue enforcement actions against you if the contractor you select does not make satisfactory progress towards achieving established corrective actions goals. To utilize the owner/operator lead option, please sign and return the enclosed Active Corrective Action Options Form within 15 days of the date of this letter.

On all correspondence or inquiries regarding this project, please reference UST Permit #06443. If you have questions regarding these options, please contact me at (803) 898-0606 or bryantjc@dhec.sc.gov.

Sincerely,

John Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Permission/Right-of-Entry forms
Active Corrective Action Options form

cc: Terracon, 521 Clemson Road, Columbia, SC 29229 (w/o enc)
Technical file (w/o enc)

Owner/ Operator Lead Option

ACTIVE CORRECTIVE ACTION OPTIONS FORM

UST PERMIT #06443

I, Annie Smith-Jones, certify that I am the legal owner on record for the underground storage tanks at the facility identified below for the release reported on December 13, 1989 or serve as the authorized representative for the owner. I wish to secure price quotations for corrective action activities as required by SCDHEC, and to select my own corrective action contractor after price quotation results are received. I understand that the SCDHEC will also advertise for price quotations in the South Carolina Business Opportunities and provide the results to me. **I understand compensation to the contractor will be from the SUPERB Account, but I may have the obligation to pay the contractor for any costs not approved by the SCDHEC. I understand that if the contractor I select does not or cannot complete the required activities, I will be required to find another certified contractor to complete the required activities for the remainder of the existing financial approval amount and that no additional funding from the SUPERB Account may be allowed. I also understand that the SCDHEC will pursue enforcement actions against me if the contractor I select does not make satisfactory progress towards achieving established corrective actions goals.**

NAME of UST owner or authorized representative (Please Print): Annie Smith-Jones

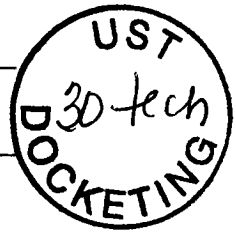
Phone Number (home)_____ (work) 410 841-5552

Signature of UST Owner: Annie Smith-Jones

Date: 3/10/15

Witness: [signature]

Date: 3/10/15



Domenico Model

UST # 06443
Site Name: One Stop
Modeler: John Bryant
Date: 6/8/2015

Groundwater Flow Parameters

K	-	ft/yr
dh/dx	-	
θ	0.25	dec. %
v_x	25	ft/yr

Transport Parameters

x_{max}	725	ft
y_{max}	0	ft
z	0	ft
Source Width	300	ft
Source Thickness	5	ft
Plume Length	725	ft
α_x	21.29302	ft
α_y	2.129302	ft
α_z	1.00E-99	ft

Simulation Time

t_{sim} = 26 yrs

Aquifer Characteristics

ρ_d	1.7	kg/L
f_{oc}	0.0002	

Source Area CoC Data / Retarded Velocity (ft/yr)

CoC	C_{source} (mg/L)	K_{oc} (L/kg)	CoC	R	v_R
Benzene	21.8	81	Benzene	1.110	22.52
Toluene	42.3	133	Toluene	1.181	21.17
Ethylbenzene	4.43	176	Ethylbenzene	1.239	20.17
Xylenes	17.5	639	Xylenes	1.869	13.38
Naphthalene	3.18	1543	Naphthalene	3.098	8.07
MtBE	0.0385	11	MtBE	1.015	24.63
EDB	0.00619	28	EDB	1.038	24.08
1,2-DCA	0.0581	17.5	1,2-DCA	1.024	24.42

Simulation Points for Breakthrough Curves

x	0	ft
y	0	ft
z	0	ft

x	0	ft
y	0	ft
z	0	ft

$$C(x,y,z,t) = \left(\frac{C_0}{8}\right)\exp\left[\left(\frac{x}{2\alpha_x}\right)\left(1-\sqrt{1+\frac{4\lambda\alpha_x}{v}}\right)\right] erfc\left[\frac{x-vt\sqrt{1+\frac{4\lambda\alpha_x}{v}}}{2\sqrt{\alpha_x vt}}\right]\left\{erf\left[\frac{y+\frac{Y}{2}}{2\sqrt{\alpha_y x}}\right]-erf\left[\frac{y-\frac{Y}{2}}{2\sqrt{\alpha_y x}}\right]\right\}\left\{erf\left[\frac{z+Z}{2\sqrt{\alpha_z x}}\right]-erf\left[\frac{z-Z}{2\sqrt{\alpha_z x}}\right]\right\}$$

UST 3/4/16 DOCKETING

Benzene Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	21.8	21.8
72.5		9.623
145		4.248
217.5		1.875
290		0.828
362.5		0.365
435		0.161
507.5		0.070
580		0.030
652.5		0.013
725	0.005	0.005

Temporal Calibration Data

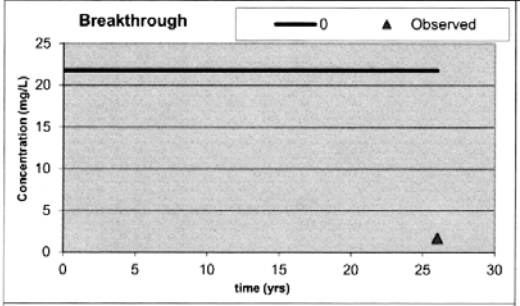
		0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)	
0		21.8		21.8	
2.6		21.800		21.800	
5.2		21.800		21.800	
7.8		21.800		21.800	
10.4		21.800		21.800	
13		21.800		21.800	
15.6		21.800		21.800	
18.2		21.800		21.800	
20.8		21.800		21.800	
23.4		21.800		21.800	
26	1.73	21.800	0.001	21.800	

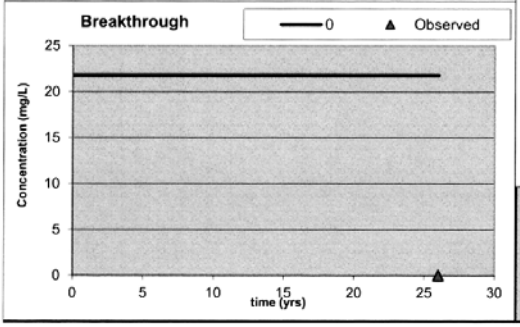
Site ID 06443

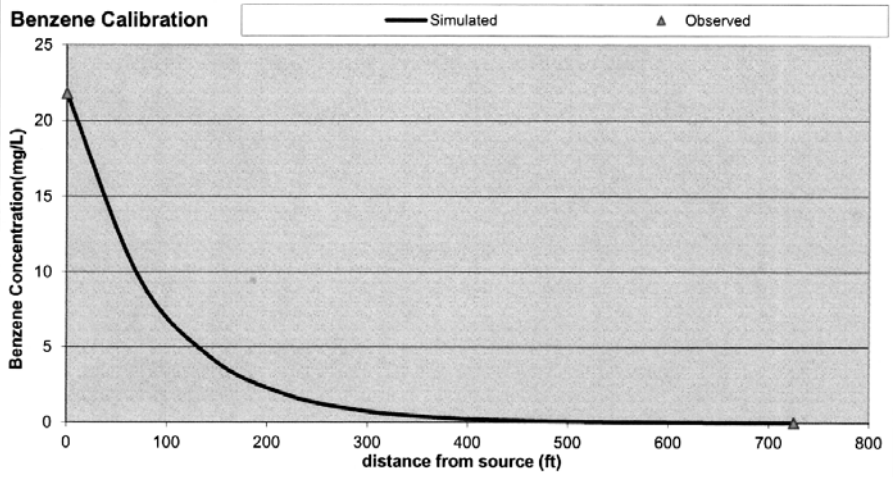
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	2.2	yrs	λ	0.315	yr^{-1}
v_x	25	ft/yr			
R	1.110				
v_R	22.519	ft/yr	C_{source}	21.8	mg/L
L_p	725	ft			
α_x	21.29302	ft	t_{sim}	26	yrs
α_y	2.129302	ft			
α_z	1E-99	ft			







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	9.62315414	4.24793192	1.87512734	0.82762909	0.36508813	0.1607122	0.070297	0.030262	0.012605	0.004959
0	9.62315414	4.24793192	1.87512734	0.82762909	0.36508813	0.1607122	0.070297	0.030262	0.012605	0.004959
0	9.62315414	4.24793192	1.87512734	0.82762909	0.36508813	0.1607122	0.070297	0.030262	0.012605	0.004959
0	9.62315414	4.24793192	1.87512734	0.82762909	0.36508813	0.1607122	0.070297	0.030262	0.012605	0.004959
0	9.62315414	4.24793192	1.87512734	0.82762909	0.36508813	0.1607122	0.070297	0.030262	0.012605	0.004959

Toluene Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	42.3	42.3
72.5		17.587
145		7.312
217.5		3.040
290		1.264
362.5		0.525
435		0.217
507.5		0.089
580		0.036
652.5		0.014
725	0.005	0.005

Temporal Calibration Data

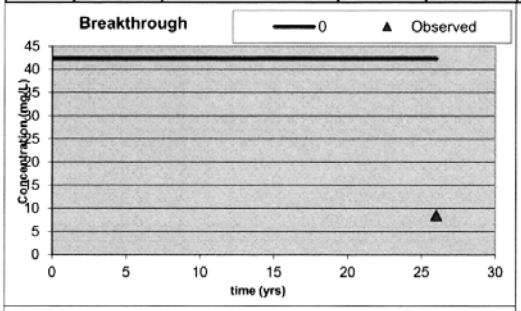
	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		42.3		42.3
2.6		42.300		42.300
5.2		42.300		42.300
7.8		42.300		42.300
10.4		42.300		42.300
13		42.300		42.300
15.6		42.300		42.300
18.2		42.300		42.300
20.8		42.300		42.300
23.4		42.300		42.300
26	8.51	42.300	0.001	42.300

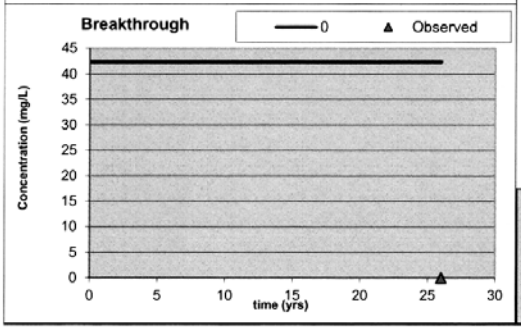
Site ID 06443

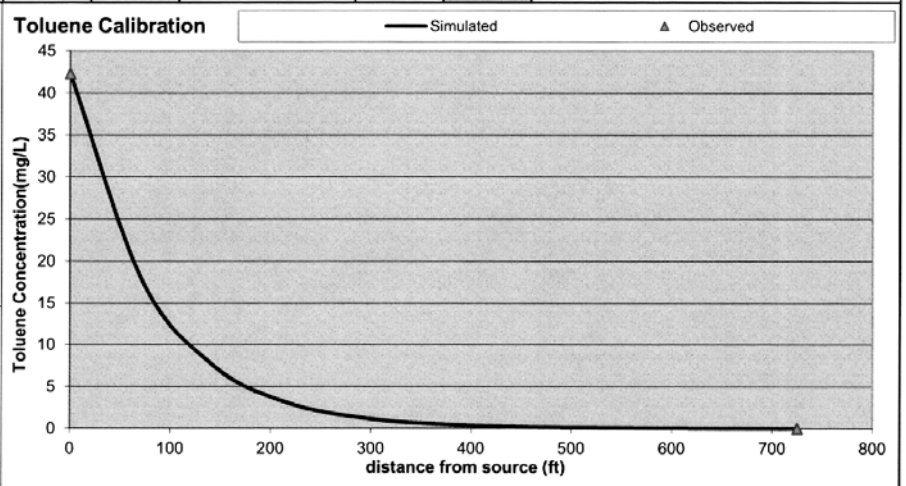
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	2.15	yrs	λ	0.32233	yr^{-1}
v_x	25	ft/yr			
R	1.181				
v_R	21.171	ft/yr	C_{source}	42.3	mg/L
L_p	725	ft			
α_x	21.29302	ft	t_{sim}	26	yrs
α_y	2.129302	ft			
α_z	1E-99	ft			







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	17.5872292	7.31228813	3.04018058	1.26379992	0.52495176	0.2174121	0.089249	0.035853	0.013796	0.004942
0	17.5872292	7.31228813	3.04018058	1.26379992	0.52495176	0.2174121	0.089249	0.035853	0.013796	0.004942
0	17.5872292	7.31228813	3.04018058	1.26379992	0.52495176	0.2174121	0.089249	0.035853	0.013796	0.004942
0	17.5872292	7.31228813	3.04018058	1.26379992	0.52495176	0.2174121	0.089249	0.035853	0.013796	0.004942
0	17.5872292	7.31228813	3.04018058	1.26379992	0.52495176	0.2174121	0.089249	0.035853	0.013796	0.004942

Ethylbenzene Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	4.43	4.43
72.5		2.421
145		1.323
217.5		0.722
290		0.394
362.5		0.214
435		0.114
507.5		0.059
580		0.028
652.5		0.012
725	0.005	0.005

Temporal Calibration Data

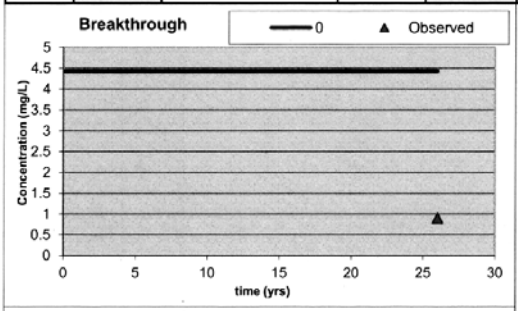
		0		0
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		4.43		4.43
2.6		4.430		4.430
5.2		4.430		4.430
7.8		4.430		4.430
10.4		4.430		4.430
13		4.430		4.430
15.6		4.430		4.430
18.2		4.430		4.430
20.8		4.430		4.430
23.4		4.430		4.430
26	0.904	4.430	0.001	4.430

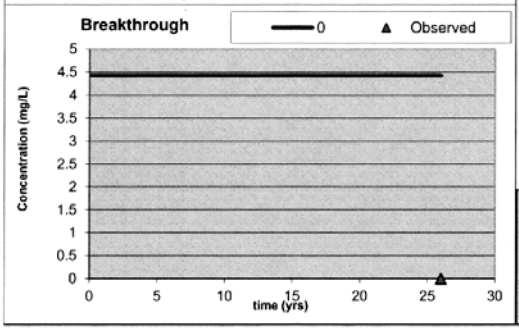
Site ID 06443

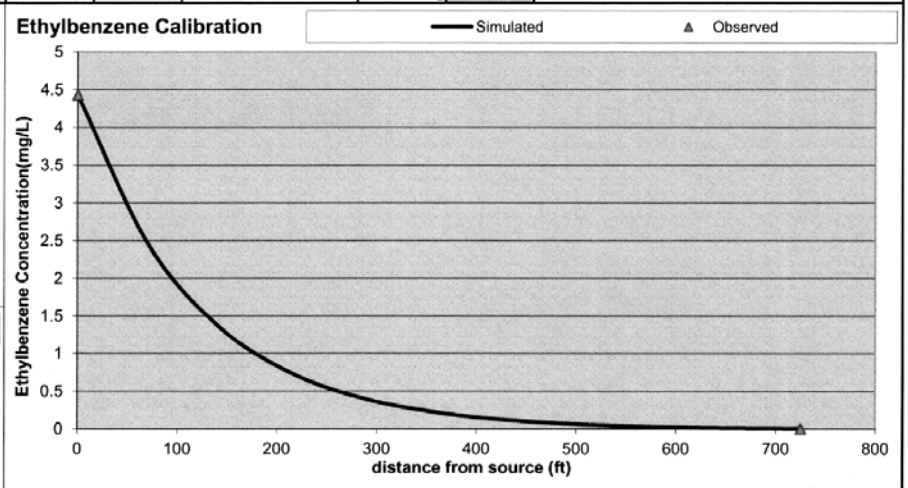
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	3.5	yrs	λ	0.198	yr^{-1}
v_x	25	ft/yr			
R	1.239				
v_R	20.172	ft/yr	C_{source}	4.43	mg/L
L_p	725	ft			
α_x	21.29302	ft	t_{sim}	26	yrs
α_y	2.129302	ft			
α_z	1E-99	ft			







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	2.42062144	1.32258965	0.7223961	0.3939519	0.21362634	0.1140194	0.05875	0.02841	0.012476	0.00482
0	2.42062144	1.32258965	0.7223961	0.3939519	0.21362634	0.1140194	0.05875	0.02841	0.012476	0.00482
0	2.42062144	1.32258965	0.7223961	0.3939519	0.21362634	0.1140194	0.05875	0.02841	0.012476	0.00482
0	2.42062144	1.32258965	0.7223961	0.3939519	0.21362634	0.1140194	0.05875	0.02841	0.012476	0.00482
0	2.42062144	1.32258965	0.7223961	0.3939519	0.21362634	0.1140194	0.05875	0.02841	0.012476	0.00482

Xylenes Calibration

Spatial Calibration Data

(centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	17.5	17.5
72.5		13.343
145		10.066
217.5		7.332
290		4.929
362.5		2.883
435		1.384
507.5		0.520
580		0.148
652.5		0.031
725	0.005	0.005

Temporal Calibration Data

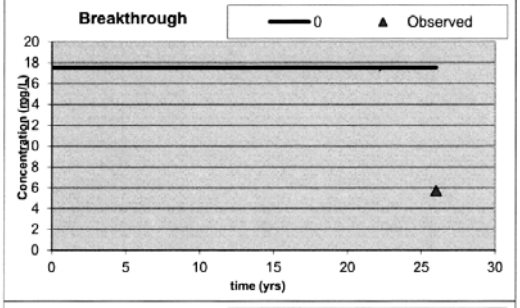
	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		17.5		17.5
2.6		17.500		17.500
5.2		17.500		17.500
7.8		17.500		17.500
10.4		17.500		17.500
13		17.500		17.500
15.6		17.500		17.500
18.2		17.500		17.500
20.8		17.500		17.500
23.4		17.500		17.500
26	5.72	17.500	0.003	17.500

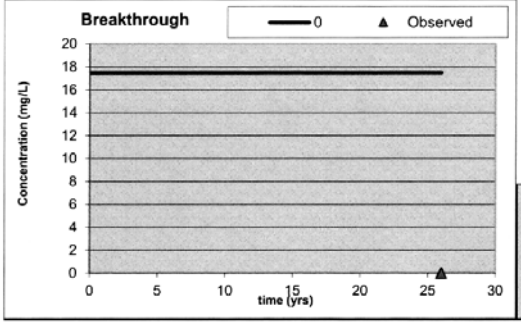
Site ID 06443

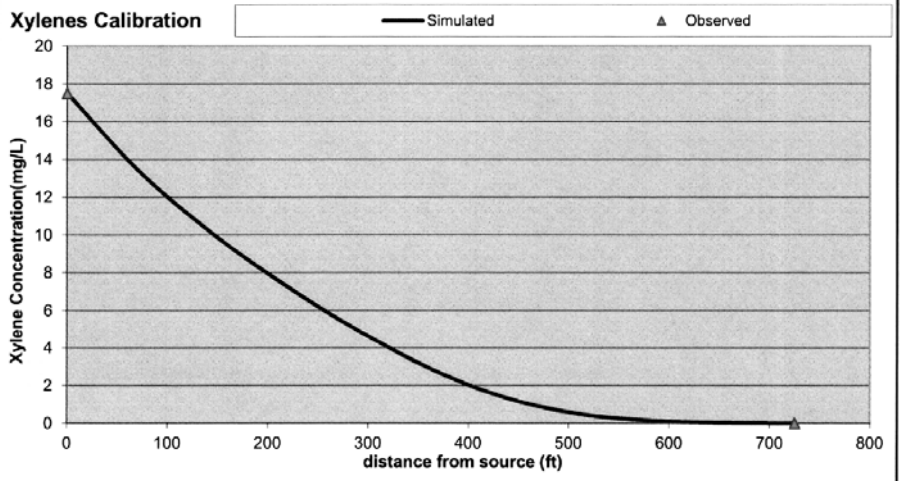
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	13	yrs	λ	0.05331	yr^{-1}
v_x	25	ft/yr			
R	1.869				
v_R	13.376	ft/yr	C_{source}	17.5	mg/L
L_p	725	ft			
α_x	21.29302	ft	t_{sim}	26	yrs
α_y	2.129302	ft			
α_z	1E-99	ft			







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	13.3428573	10.0657696	7.33166403	4.92895844	2.88278701	1.3838222	0.520239	0.148126	0.031226	0.004801
0	13.3428573	10.0657696	7.33166403	4.92895844	2.88278701	1.3838222	0.520239	0.148126	0.031226	0.004801
0	13.3428573	10.0657696	7.33166403	4.92895844	2.88278701	1.3838222	0.520239	0.148126	0.031226	0.004801
0	13.3428573	10.0657696	7.33166403	4.92895844	2.88278701	1.3838222	0.520239	0.148126	0.031226	0.004801
0	13.3428573	10.0657696	7.33166403	4.92895844	2.88278701	1.3838222	0.520239	0.148126	0.031226	0.004801

MtBE Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	0.0385	0.0385
72.5		0.034
145		0.030
217.5		0.027
290		0.023
362.5		0.020
435		0.017
507.5		0.014
580		0.011
652.5		0.007
725	0.005	0.005

Temporal Calibration Data

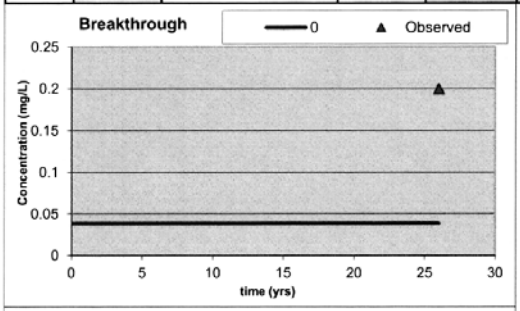
	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		0.0385		0.0385
2.6		0.039		0.039
5.2		0.039		0.039
7.8		0.039		0.039
10.4		0.039		0.039
13		0.039		0.039
15.6		0.039		0.039
18.2		0.039		0.039
20.8		0.039		0.039
23.4		0.039		0.039
26	0.2	0.039	0.001	0.039

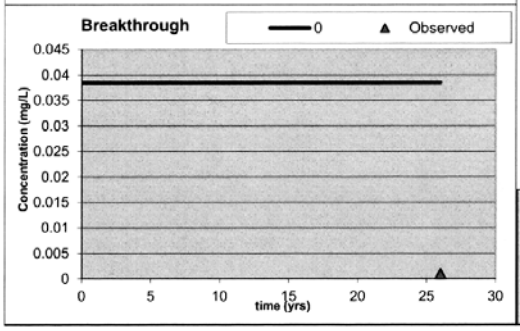
Site ID 06443

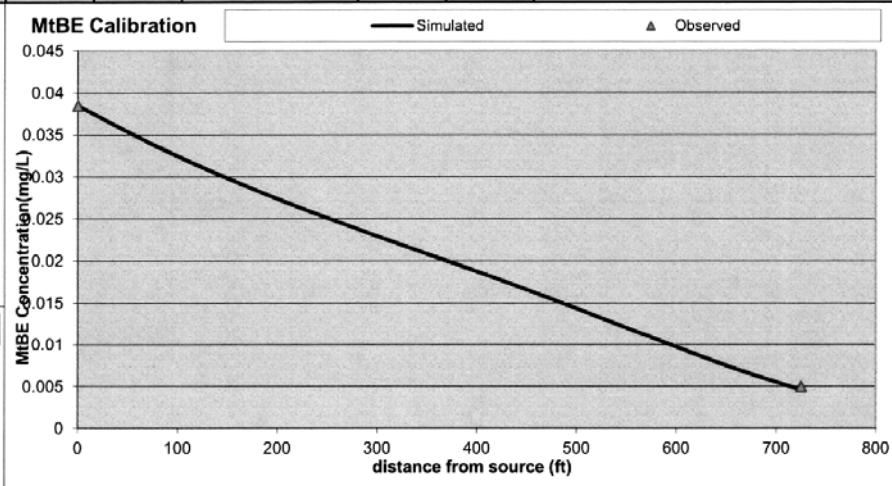
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	16	yrs	λ	0.04331 yr^{-1}
v_x	25	ft/yr		
R	1.015			
v_R	24.632	ft/yr	C_{source}	0.0385 mg/L
L_p	725	ft		
α_x	21.29302	ft	t_{sim}	26 yrs
α_y	2.129302	ft		
α_z	1E-99	ft		







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	0.03403942	0.03008603	0.02655691	0.02334305	0.02029146	0.01722	0.013993	0.010632	0.007372	0.004561
0	0.03403942	0.03008603	0.02655691	0.02334305	0.02029146	0.01722	0.013993	0.010632	0.007372	0.004561
0	0.03403942	0.03008603	0.02655691	0.02334305	0.02029146	0.01722	0.013993	0.010632	0.007372	0.004561
0	0.03403942	0.03008603	0.02655691	0.02334305	0.02029146	0.01722	0.013993	0.010632	0.007372	0.004561
0	0.03403942	0.03008603	0.02655691	0.02334305	0.02029146	0.01722	0.013993	0.010632	0.007372	0.004561

Naphthalene Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	3.18	3.18
72.5		1.202
145		0.446
217.5		0.153
290		0.044
362.5		0.009
435		0.001
507.5		0.000
580		0.000
652.5		0.000
725	0.005	0.000

Temporal Calibration Data

	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		3.18		3.18
2.6		3.180		3.180
5.2		3.180		3.180
7.8		3.180		3.180
10.4		3.180		3.180
13		3.180		3.180
15.6		3.180		3.180
18.2		3.180		3.180
20.8		3.180		3.180
23.4		3.180		3.180
26	0.005	3.180		3.180

Site ID 06443

Site Name One Stop

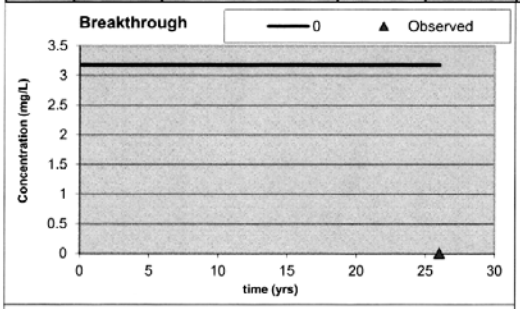
Model Calibration Parameters

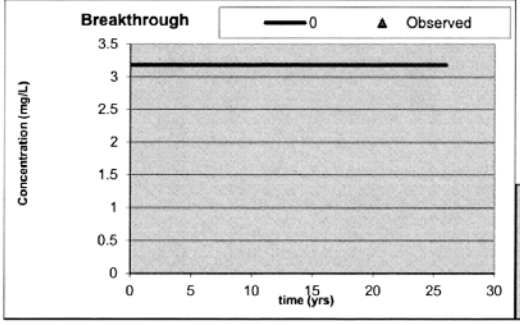
$t_{1/2}$	5	yrs
v_x	25	ft/yr
R	3.098	
v_R	8.068	ft/yr
L_p	725	ft
α_x	21.29302	ft
α_y	2.129302	ft
α_z	1E-99	ft

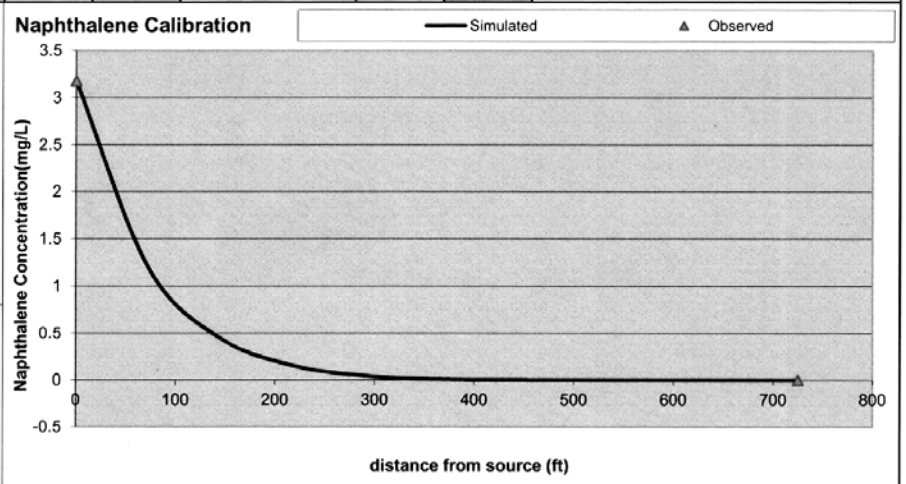
λ 0.1386 yr^{-1}

C_{source} 3.18 mg/L

t_{sim} 26 yrs







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	1.20222107	0.44579465	0.15296499	0.04350797	0.00904828	0.0012455	0.000106	5.42E-06	1.61E-07	2.75E-09
0	1.20222107	0.44579465	0.15296499	0.04350797	0.00904828	0.0012455	0.000106	5.42E-06	1.61E-07	2.75E-09
0	1.20222107	0.44579465	0.15296499	0.04350797	0.00904828	0.0012455	0.000106	5.42E-06	1.61E-07	2.75E-09
0	1.20222107	0.44579465	0.15296499	0.04350797	0.00904828	0.0012455	0.000106	5.42E-06	1.61E-07	2.75E-09
0	1.20222107	0.44579465	0.15296499	0.04350797	0.00904828	0.0012455	0.000106	5.42E-06	1.61E-07	2.75E-09

EDB Calibration

Spatial Calibration Data

(centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	0.00619	0.00619
72.5		0.00409
145		0.00271
217.5		0.00179
290		0.00118
362.5		0.00078
435		0.00051
507.5		0.00033
580		0.00020
652.5		0.00012
725	6.3E-06	0.00006

Temporal Calibration Data

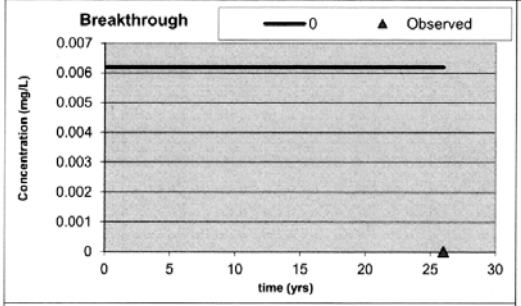
		0		0
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		0.00619		0.00619
2.6		0.00619		0.00619
5.2		0.00619		0.00619
7.8		0.00619		0.00619
10.4		0.00619		0.00619
13		0.00619		0.00619
15.6		0.00619		0.00619
18.2		0.00619		0.00619
20.8		0.00619		0.00619
23.4		0.00619		0.00619
26	0.00001	0.00619		0.00619

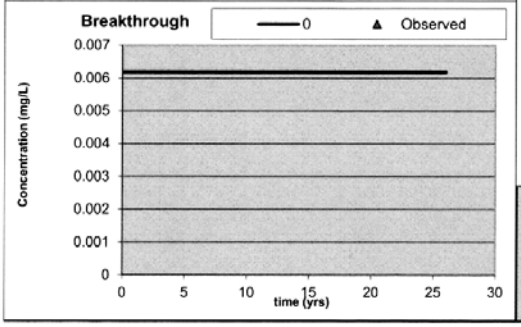
Site ID 06443

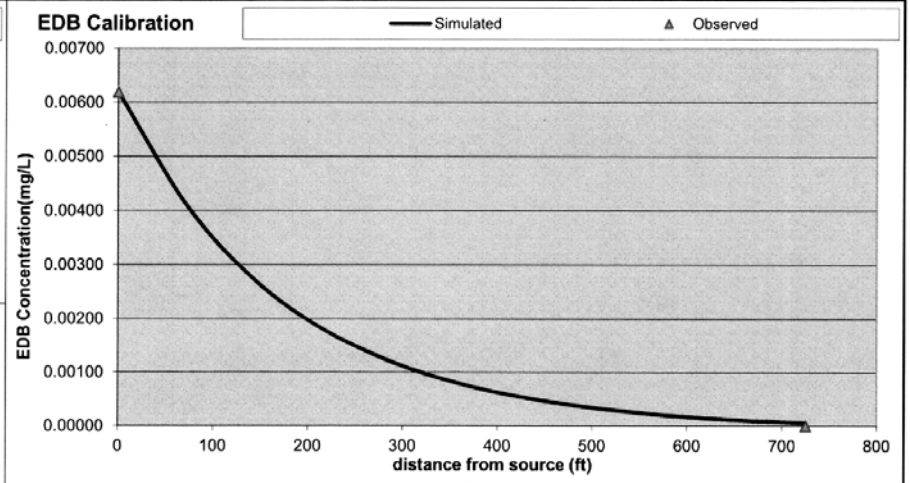
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	4.5	yrs	λ	0.154 yr^{-1}
v_x	25	ft/yr		
R	1.038			
v_R	24.083	ft/yr	C_{source}	0.00619 mg/L
L_p	725	ft		
α_x	21.29302	ft	t_{sim}	26 yrs
α_y	2.129302	ft		
α_z	1E-99	ft		







Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	0.00409397	0.00270759	0.00179034	0.00118279	0.00077902	0.0005087	0.000326	0.000201	0.000116	6.18E-05
0	0.00409397	0.00270759	0.00179034	0.00118279	0.00077902	0.0005087	0.000326	0.000201	0.000116	6.18E-05
0	0.00409397	0.00270759	0.00179034	0.00118279	0.00077902	0.0005087	0.000326	0.000201	0.000116	6.18E-05
0	0.00409397	0.00270759	0.00179034	0.00118279	0.00077902	0.0005087	0.000326	0.000201	0.000116	6.18E-05
0	0.00409397	0.00270759	0.00179034	0.00118279	0.00077902	0.0005087	0.000326	0.000201	0.000116	6.18E-05

1,2-DCA Calibration

Spatial Calibration Data

(centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	0.0581	0.0581
72.5		0.049
145		0.042
217.5		0.036
290		0.030
362.5		0.025
435		0.021
507.5		0.016
580		0.012
652.5		0.008
725	0.005	0.005

Temporal Calibration Data

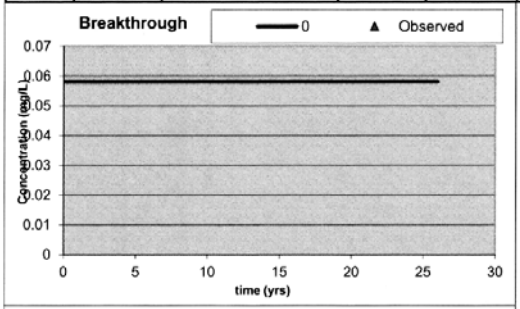
		0		0
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		0.0581		0.0581
2.6		0.058		0.058
5.2		0.058		0.058
7.8		0.058		0.058
10.4		0.058		0.058
13		0.058		0.058
15.6		0.058		0.058
18.2		0.058		0.058
20.8		0.058		0.058
23.4		0.058		0.058
26		0.058		0.058

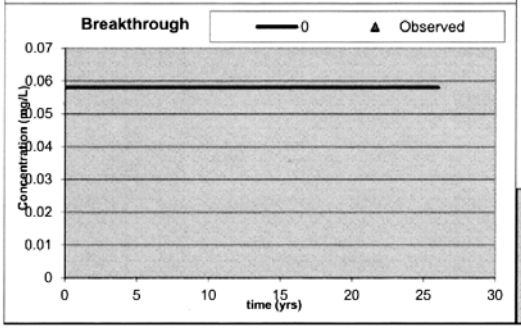
Site ID 06443

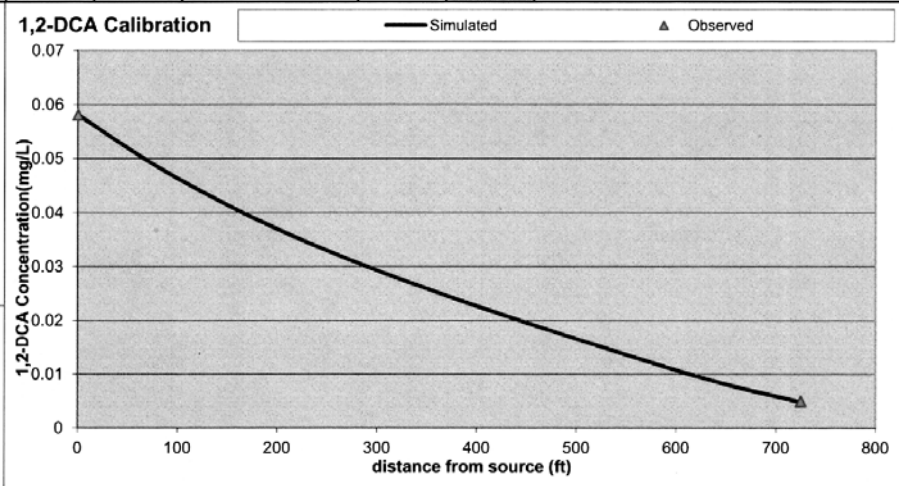
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	12	yrs	λ	0.05775 yr^{-1}
v_x	25	ft/yr		
R	1.024			
v_R	24.419	ft/yr	C_{source}	0.0581 mg/L
L_p	725	ft		
α_x	21.29302	ft	t_{sim}	26 yrs
α_y	2.129302	ft		
α_z	1E-99	ft		





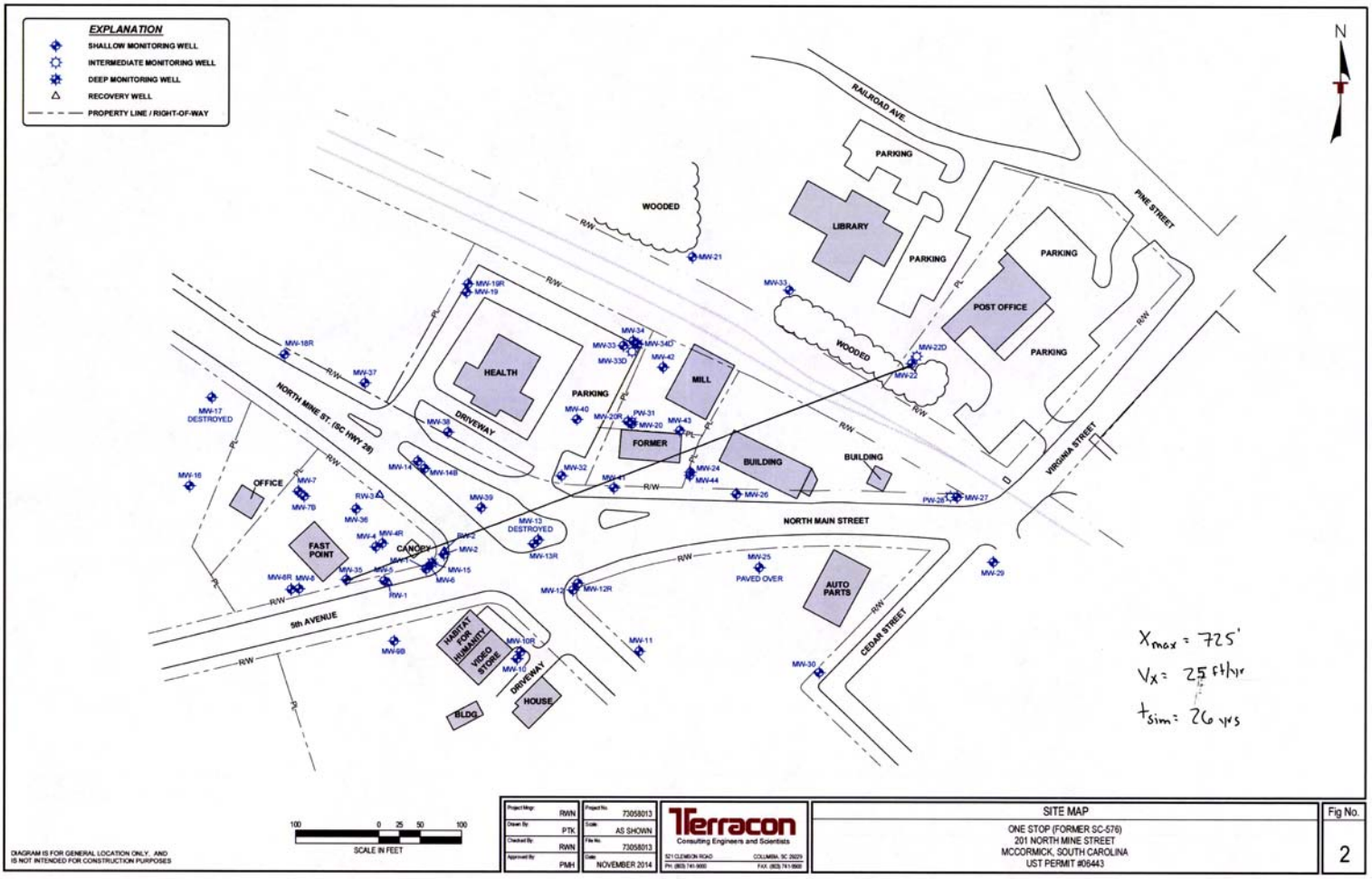


Source	72.5	145	217.5	290	362.5	435	507.5	580	652.5	725
0	0.04932794	0.04186967	0.0355007	0.02999224	0.02509077	0.0205351	0.016137	0.011891	0.008015	0.004829
0	0.04932794	0.04186967	0.0355007	0.02999224	0.02509077	0.0205351	0.016137	0.011891	0.008015	0.004829
0	0.04932794	0.04186967	0.0355007	0.02999224	0.02509077	0.0205351	0.016137	0.011891	0.008015	0.004829
0	0.04932794	0.04186967	0.0355007	0.02999224	0.02509077	0.0205351	0.016137	0.011891	0.008015	0.004829
0	0.04932794	0.04186967	0.0355007	0.02999224	0.02509077	0.0205351	0.016137	0.011891	0.008015	0.004829

SSTLs t 1000 yrs

UST Permit # 06443
Site Name: One Stop

SSTLs in mg/L			RBSLs (mg/L):	0.005	1.000	0.700	10.000	0.040	0.025	0.00005	0.005
MW #	x (ft)	y (ft)	z (ft)	Benzene SSTL	Toluene SSTL	Ethylbenzene SSTL	Xylenes SSTL	MtBE SSTL	Naphthalene SSTL	EDB SSTL	1,2-DCA SSTL
MW-1	575	0	0	3.286	1056.612	84.691	83.888	0.106	54.704	0.00133	0.018
MW-2	550	0	0	2.477	780.317	68.725	76.448	0.102	39.140	0.00115	0.017
MW-6	575	0	0	3.286	1056.612	84.691	83.888	0.106	54.704	0.00133	0.018
MW-12R	425	0	0	0.604	171.581	24.205	48.099	0.082	7.347	0.00056	0.013
MW-13R	430	0	0	0.639	182.293	25.237	48.997	0.083	7.855	0.00058	0.013
MW-14B	550	0	0	2.477	780.317	68.725	76.448	0.102	39.140	0.00115	0.017
MW-20	300	0	0	0.147	37.771	8.535	30.296	0.067	1.381	0.00028	0.010
MW-20R	300	0	0	0.147	37.771	8.535	30.296	0.067	1.381	0.00028	0.010
MW-26	225	0	0	0.063	15.236	4.567	22.963	0.059	0.506	0.00018	0.008
MW-32	400	0	0	0.455	126.759	19.649	43.849	0.079	5.258	0.00049	0.012
MW-35	675	0	0	10.178	3554.772	195.456	121.713	0.126	208.880	0.00236	0.023
MW-36	625	0	0	5.782	1937.756	128.641	101.031	0.116	106.879	0.00177	0.021
MW-37	600	0	0	4.359	1430.841	104.374	92.057	0.111	76.461	0.00154	0.019
MW-38	500	0	0	1.408	425.668	45.264	63.503	0.094	20.042	0.00087	0.015
MW-39	480	0	0	1.124	334.059	38.304	58.965	0.090	15.335	0.00077	0.015
MW-40	350	0	0	0.259	69.190	12.949	36.446	0.072	2.694	0.00037	0.011
MW-41	350	0	0	0.259	69.190	12.949	36.446	0.072	2.694	0.00037	0.011
MW-42	250	0	0	0.084	20.620	5.626	25.185	0.061	0.707	0.00021	0.009
			λ (yr^{-1}):	0.315	0.322	0.198	0.053	0.043	0.139	0.154	0.058
			R:	1.110	1.181	1.239	1.869	1.015	3.098	1.038	1.024
			Pure Substance Solubility:	1750	526	169	175	5110	31	4321	8520
			Effective Solubility:	44.39	26.54	3.7	21.68	173	6.7	1.9	3.7


EXPLANATION
SHALLOW MONITORING WELL
INTERMEDIATE MONITORING WELL
DEEP MONITORING WELL
RECOVERY WELL
PROPERTY LINE / RIGHT-OF-WAY
N
RAILROAD AVE.
PARKING
WOODED
LIBRARY
PINE STREET
POST OFFICE
HEALTH
MILL
FORMER
BUILDING
OFFICE
FAST POINT
CANOPY
NORTH MINE ST. (SC HWY 28)
DRIVEWAY
NORTH MAIN STREET
VIRGINIA STREET
5th AVENUE
CEDAR STREET
AUTO PARTS
PAVED OVER
HABITAT FOR HUMANITY
VOGO STORE
BLDG.
HOUSE
MW-17 DESTROYED
MW-12 DESTROYED
X_{max} = 725'
V_x = 25 ft/yr
t_{sim} = 26 yrs
100 0 25 50 100
SCALE IN FEET
DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES
Project Mngr: RWN
Drawn By: PTK
Checked By: RWN
Approved By: PMH
Project No. 73058013
Scale: AS SHOWN
File No. 73058013
Date: NOVEMBER 2014
Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH: (803) 741-9000 FAX: (803) 741-9001
SITE MAP
ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443
Fig No. 2

Domenico Model (Oxygenates)

UST # 06443
Site Name: One Stop
Modeler: John Bryant
Date: 6/8/2015

Groundwater Flow Parameters

K	-	ft/yr
dh/dx	-	
θ	0.25	dec. %
v_x	25	ft/yr

Transport Parameters

x_{max}	625	ft
y_{max}	0	ft
z	0	ft
Source Width	300	ft
Source Thickness	5	ft
Plume Length	625	ft
α_x	19.90717	ft
α_y	1.990717	ft
α_z	1.00E-99	ft

Simulation Time

t_{sim} = 26 yrs

Aquifer Characteristics

ρ_d	1.7	kg/L
f_{oc}	0.0002	

Source Area CoC Data

CoC	C_{source} (mg/L)	K_{oc} (L/kg)
tBA	2.12	1
tAA	30	1
DIPE	0.537	1.5
tAME		1.5
EtBE		1.5
Ethanol		0.5

Retarded Velocity (ft/yr)

CoC	R	v_R
tBA	1.001	24.97
tAA	1.001	24.97
DIPE	1.002	24.95
tAME	1.002	24.95
EtBE	1.002	24.95
Ethanol	1.001	24.98

Simulation Points for Breakthrough Curves

x	0	ft
y	0	ft
z	0	ft

x	0	ft
y	0	ft
z	0	ft

$$C(x,y,z,t) = \left(\frac{C_0}{8}\right)\exp\left[\left(\frac{x}{2\alpha_x}\right)\left(1-\sqrt{1+\frac{4\lambda\alpha_x}{v}}\right)\right] erfc\left[\frac{x-vt\sqrt{1+\frac{4\lambda\alpha_x}{v}}}{2\sqrt{\alpha_x vt}}\right]\left\{erf\left[\frac{y+\frac{Y}{2}}{2\sqrt{\alpha_y x}}\right]-erf\left[\frac{y-\frac{Y}{2}}{2\sqrt{\alpha_y x}}\right]\right\}\left\{erf\left[\frac{z+Z}{2\sqrt{\alpha_z x}}\right]-erf\left[\frac{z-Z}{2\sqrt{\alpha_z x}}\right]\right\}$$

tBA Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	2.12	2.12
62.5		1.157
125		0.631
187.5		0.344
250		0.188
312.5		0.102
375		0.056
437.5		0.030
500		0.017
562.5		0.009
625	0.005	0.005

Temporal Calibration Data

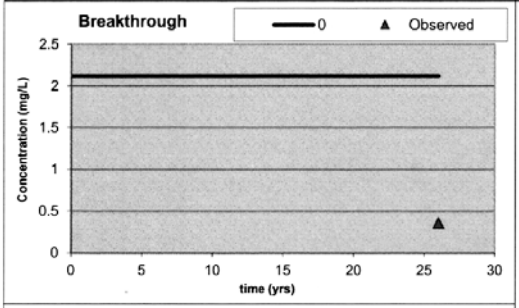
	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		2.12		2.12
2.6		2.120		2.120
5.2		2.120		2.120
7.8		2.120		2.120
10.4		2.120		2.120
13		2.120		2.120
15.6		2.120		2.120
18.2		2.120		2.120
20.8		2.120		2.120
23.4		2.120		2.120
26	0.36	2.120		2.120

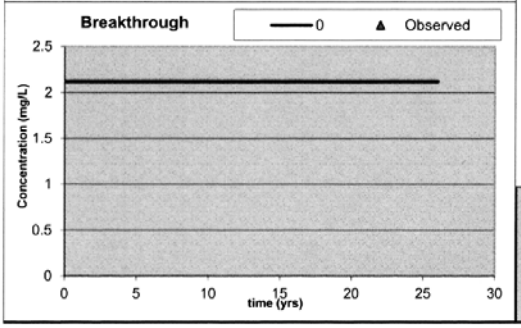
Site ID 06443

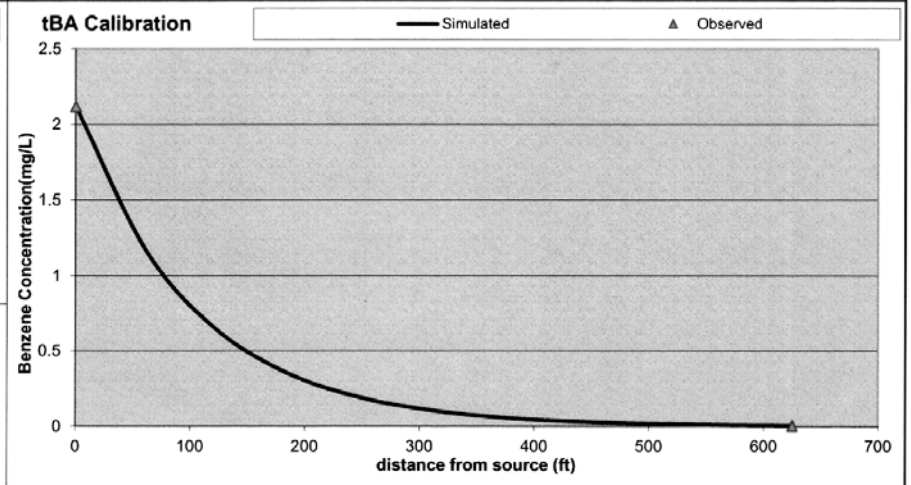
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	2.4	yrs	λ	0.28875	yr^{-1}
v_x	25	ft/yr			
R	1.001				
v_R	24.966	ft/yr	C_{source}	2.12	mg/L
L_p	625	ft			
α_x	19.90717	ft	t_{sim}	26	yrs
α_y	1.990717	ft			
α_z	1E-99	ft			







Source	62.5	125	187.5	250	312.5	375	437.5	500	562.5	625
0	1.15661513	0.63101785	0.34426506	0.18781732	0.10245556	0.0558689	0.030429	0.01652	0.008902	0.004724
0	1.15661513	0.63101785	0.34426506	0.18781732	0.10245556	0.0558689	0.030429	0.01652	0.008902	0.004724
0	1.15661513	0.63101785	0.34426506	0.18781732	0.10245556	0.0558689	0.030429	0.01652	0.008902	0.004724
0	1.15661513	0.63101785	0.34426506	0.18781732	0.10245556	0.0558689	0.030429	0.01652	0.008902	0.004724
0	1.15661513	0.63101785	0.34426506	0.18781732	0.10245556	0.0558689	0.030429	0.01652	0.008902	0.004724

tAA Calibration

Spatial Calibration Data (centerline)

x	C_{obs} (mg/L)	C_{sim} (mg/L)
0	30	30
62.5		12.503
125		5.211
187.5		2.172
250		0.905
312.5		0.377
375		0.157
437.5		0.065
500		0.027
562.5		0.011
625	0.005	0.005

Temporal Calibration Data

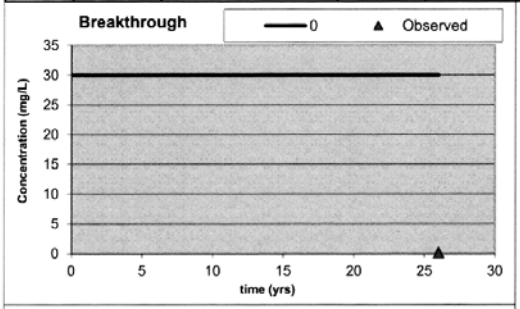
	0		0	
t (yrs)	C_{obs} (mg/L)	C_{sim} (mg/L)	C_{obs} (mg/L)	C_{sim} (mg/L)
0		30		30
2.6		30.000		30.000
5.2		30.000		30.000
7.8		30.000		30.000
10.4		30.000		30.000
13		30.000		30.000
15.6		30.000		30.000
18.2		30.000		30.000
20.8		30.000		30.000
23.4		30.000		30.000
26	0.16	30.000		30.000

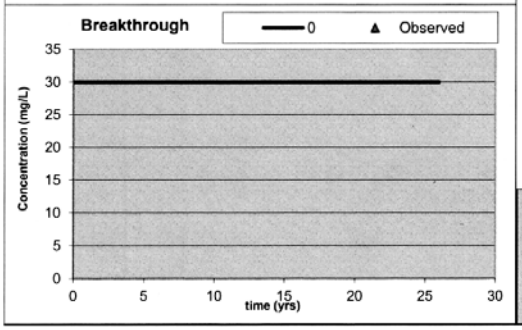
Site ID 06443

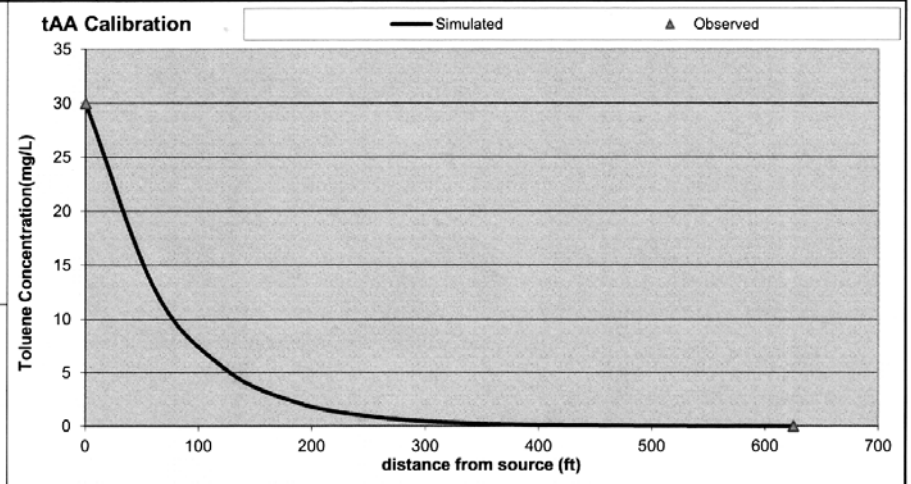
Site Name One Stop

Model Calibration Parameters

$t_{1/2}$	1.55	yrs	λ	0.4471	yr^{-1}
v_x	25	ft/yr			
R	1.001				
v_R	24.966	ft/yr	C_{source}	30	mg/L
L_p	625	ft			
α_x	19.90717	ft	t_{sim}	26	yrs
α_y	1.990717	ft			
α_z	1E-99	ft			







Source	62.5	125	187.5	250	312.5	375	437.5	500	562.5	625
0	12.5026552	5.21054616	2.1715217	0.90499028	0.37714995	0.1571613	0.065474	0.027259	0.01133	0.004691
0	12.5026552	5.21054616	2.1715217	0.90499028	0.37714995	0.1571613	0.065474	0.027259	0.01133	0.004691
0	12.5026552	5.21054616	2.1715217	0.90499028	0.37714995	0.1571613	0.065474	0.027259	0.01133	0.004691
0	12.5026552	5.21054616	2.1715217	0.90499028	0.37714995	0.1571613	0.065474	0.027259	0.01133	0.004691
0	12.5026552	5.21054616	2.1715217	0.90499028	0.37714995	0.1571613	0.065474	0.027259	0.01133	0.004691

UST Permit # 06443
Site Name: One Stop

SSTLs t 1000 yrs

SSTLs in mg/L			RBSLs (mg/L):	1.400	0.240	0.150			
MW #	x (ft)	y (ft)	z (ft)	tBA SSTL	tAA SSTL	DIPE SSTL			
MW-1	575	0	0	369.681	755.184	>99999			
MW-2	550	0	0	290.006	531.918	>99999			
MW-6	575	0	0	369.681	755.184	>99999			
MW-12R	425	0	0	86.227	92.286	18523.592			
MW-13R	430	0	0	90.512	98.982	21263.529			
MW-14B	550	0	0	290.006	531.918	>99999			
MW-20	300	0	0	25.659	16.025	588.993			
MW-20R	300	0	0	25.659	16.025	588.993			
MW-26	225	0	0	12.401	5.606	74.405			
MW-32	400	0	0	67.662	65.020	9293.575			
MW-35	675	0	0	976.726	3070.112	>99999			
MW-36	625	0	0	600.821	1522.470	>99999			
MW-37	600	0	0	471.273	1072.229	>99999			
MW-38	500	0	0	178.501	263.937	>99999			
MW-39	480	0	0	147.014	199.428	84483.742			
MW-40	350	0	0	41.665	32.278	2339.548			
MW-41	350	0	0	41.665	32.278	2339.548			
MW-42	250	0	0	15.802	7.956	148.287			
			λ (yr^{-1}):	0.289	0.447	1.066			
			R:	1.001	1.001	1.002			

NOTES:
1) GROUND WATER SAMPLES COLLECTED ON NOVEMBER 13-15, 2014.
2) ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L)
3) CONCENTRATIONS IN BOLD EXCEED RBSLs OR ALs
4) J - INDICATES ESTIMATED VALUE

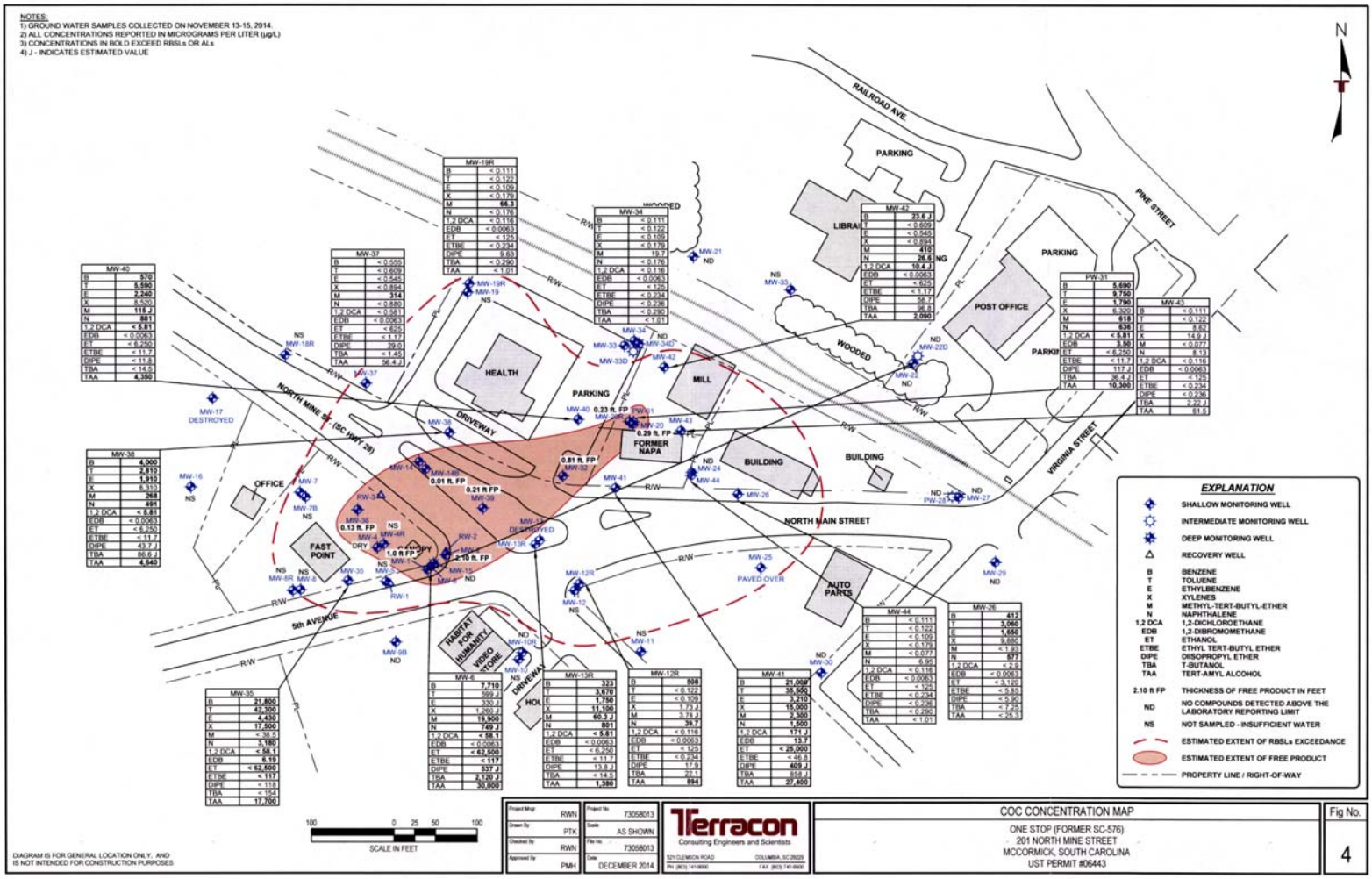


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr	RWN
Drawn By	PTK
Checked By	RWN
Approved By	PMH

Project No	73058013
Scale	AS SHOWN
File No	73058013
Date	DECEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
PH (803) 741-9000 FAX (803) 741-9005

COC CONCENTRATION MAP

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 4

John

UST 32 tech DOCKETING

D H E C

Underground Storage Tank Management Division
Field Data Information Sheet – Monitoring Well Gauging

Site Information

Date: 6/10/15	Site ID #: 06443	Site Name: Mine Street Mart
County: McCormick	Project Manager: John Bryant	Field Personnel: John B. / Sonya U.

Well Gauging Information

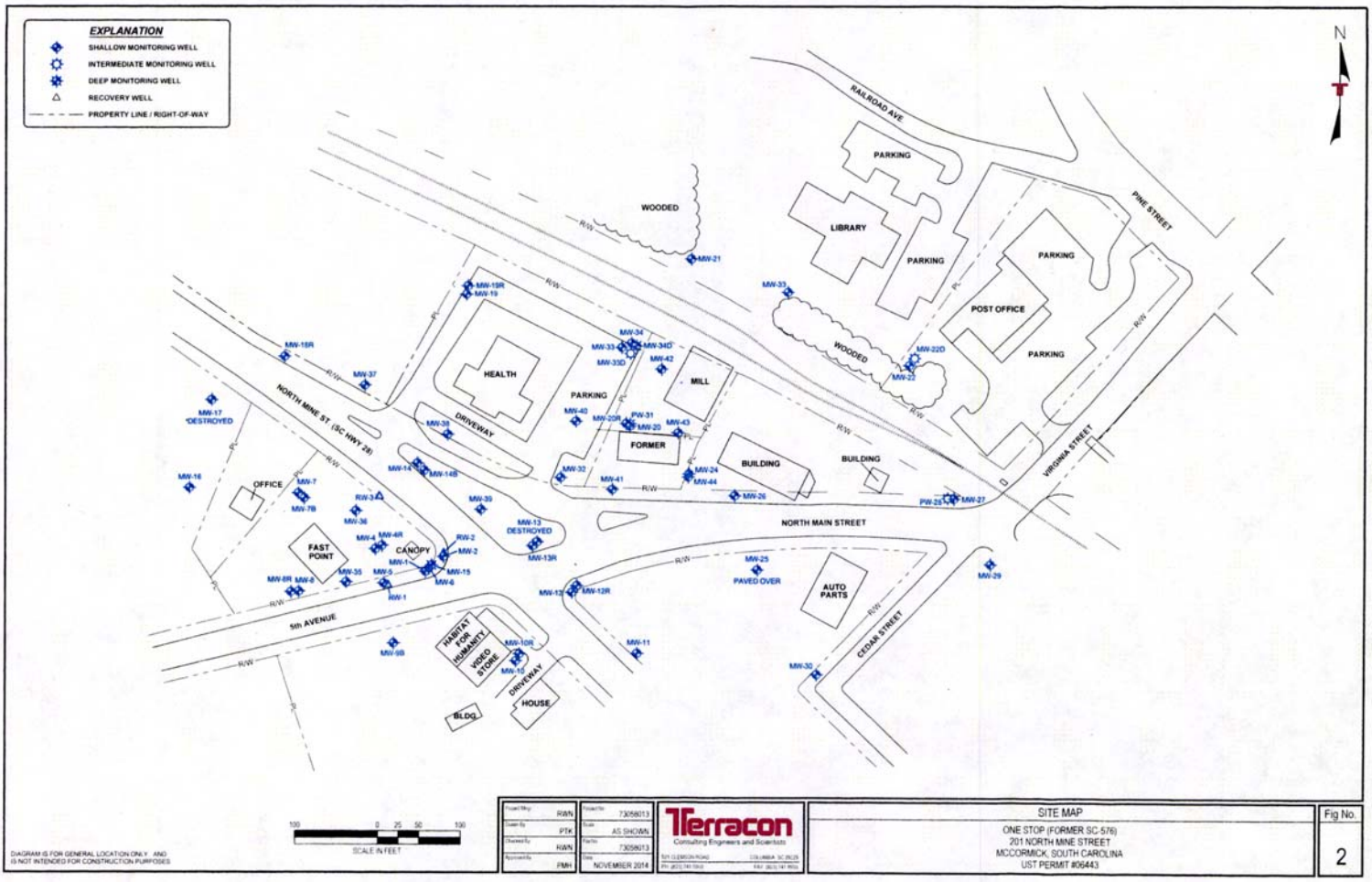
Well ID:	Total Well Depth (ft.)	Screened Interval (ft.)	Depth to Free Product (ft.)	Depth to Ground water (ft.)	Free Product Thickness (ft.)	Confirmed with Bailer?	Photos Taken ?	Well Pad OK?	Bolts in Well Cover?	Water in Well Vault?
mw-1			21.54	22.09		No	No	NO PAD	No	Yes
mw-2			19.99	20.95		No	No	No PAD		Yes
mw-13R			—	19.75	—	No	No	Yes	No	Yes
mw-14B			—	21.89	—	No	No	Yes	Yes	No
mw-20			—	23.30	—	No	No	Yes (old)	Yes	No
mw-32			18.62	18.90		No	No	Yes	No	No
mw-36			—	22.43	—	No	No	CRACKED	Yes	NO FILLED DIRT in
mw-39			21.29	22.65		No	No	Yes	Yes	No
mw-4R			—	22.55	—	No	No	CRACKED	No	No
mw-20R			23.10	23.20	—	No	No	Yes	Yes	No
~~RW-1~~ MW-14			—	10.40	—	No	No	Yes	No	Yes
RW-2										
RW-3										

Notes: _____

_____

_____

_____ Signature: _____



Project Mgr	RWN	Project No	73058013
Drawn By	PTK	Scale	AS SHOWN
Checked By	RWN	File No	73058013
Approved By	PMH	Date	NOVEMBER 2014

Terracon
Consulting Engineers and Scientists

SITE MAP
ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No.
2

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment

MAR 0 2 2005

Technical Bulk Doc - Corresp Nov. 2005 - Nov 1989 33 leaf

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

Re: One Stop (Former SC-576), 201 N. Mine St., McCormick, SC
UST Permit #06443; CA #24044; MWA #UMW-19046
Release reported December 13, 1989
Monitoring report received February 18, 2005
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site using Gage Group as your contractor. The report indicates several monitoring wells are dry and that the dissolved-phase plume remains undefined. Therefore, the Program requests that monitoring wells MW-4, MW-7B, MW-10, MW-11 and MW-22 be replaced, and three additional monitoring wells (two shallow and one deep) be installed to define the plume in the areas indicated on the enclosed site map. In an effort to construct the new and replacement monitoring wells such that they can be reasonably anticipated to bracket the watertable in the future, well screens should be fifteen (15) to twenty (20) feet in length (as dictated by historical groundwater elevation levels) since the wells at this site have a history of cycling between dry periods and periods of submerged well screens. **If additional wells are found to be destroyed or dry, please contact me prior to collecting groundwater samples.** The new wells and all existing monitoring wells should be sampled for BTEX, naphthalene, MtBE and 1,2-DCA by EPA method 8260 and for EDB by EPA method 8011 (note that the required detection limit for EDB is 0.02 µg/L). Wells with free-phase petroleum product should be gauged to determine product thickness in the wells. These data will be used to determine cleanup levels for active corrective action at this site. Costs have also been approved for completion of an updated receptor survey and a tax map with associated property owner/land use information. **Tax map information is required for this scope of work.**

Cost Agreement #24044 has been approved in the amount shown on the enclosed cost agreement form for the field screening, monitoring well installation and sampling. The necessary monitoring well approval is enclosed. Please have your contractor submit results to the Program in an assessment report containing information stipulated in the monitoring well approval and the following items:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Program, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well.

- Field screening/soil boring logs, monitoring well record forms and groundwater screening results should be included in the appendix.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

Gage Group can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

The assessment report and invoice are due within ninety (90) days from the date of this letter. An interim invoice may not be submitted for this scope of work. If the invoice is not submitted within one hundred and twenty (120) days from the date of this letter, monies allocated to pay for the work will be uncommitted. This means that invoices for the scope of work submitted after the 120-day deadline will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated costs must be preapproved by the Department for the costs to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The Program grants preapproval for transportation of virgin petroleum-contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on-site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or groundwater.

On all correspondence concerning this site, please reference UST Permit #06443 and CA #24044. If there are any questions concerning this project, please contact me by phone at (803) 896-6649 or (800) 826-5435 (within South Carolina only), by fax at (803) 896-6245, or by email at surberjd@dhec.sc.gov.

Sincerely,

John D. Surber, Jr.., Hydrogeologist
Southwestern SC Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Site map
Approved cost agreement
Monitoring well approval

cc: **Mr. Mike Hudgins**, Gage Group, 521 Clemson Rd, Columbia, SC 29229 (w/enc & original site map)
Dale Surrett,McCormick County Administrator,Rt.2 Box 84AAA, McCormick, SC 29835(w/out enc)
Technical file (w/enc)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Installation Approval Form

Date of Issue: February 25, 2005

Approval No.: UMW-19046

Approval is hereby granted to:	Gage Group
(On behalf of):	Crown Central Petroleum
UST Permit #:	06443: One Stop
Site Address:	201 N. Mine St., McCormick, SC
County:	McCormick

This approval is for the construction of up to seven shallow and one deep monitoring well(s) in accordance with the construction plans and technical specifications outlined in the South Carolina Well Standards and Regulations (R.61-71). The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to John Surber at (803) 896-6649 or surberjd@dhec.sc.gov and Uwe Klauck at (864) 223-0333 or klauckuw@dhec.sc.gov.**

5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

John D. Surber, Jr., Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: Technical File

Approved Cost Agreement [illegible]044

Facility: 06443 ONE STOP
SURBERJD
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
01 PLAN					
		B TAX MAPS	1.0000	50.00	50.00
02 RECEPTOR SURVEY					
		RECEPTOR SURVEY	1.0000	500.00	500.00
04 MOB/DEMOB					
		A EQUIPMENT	1.0000	500.00	500.00
		B PERSONNEL	4.0000	250.00	1,000.00
09 WELL INSTALLATION					
		B WATER TABLE (DRILLED)	240.0000	38.00	9,120.00
		C TELESCOPING	55.0000	58.00	3,190.00
10 SAMPLE COLLECTION					
		A GROUND WATER	5.0000	55.00	275.00
		D GROUNDWATER NO-PURGE	22.0000	35.00	770.00
		E GAUGE WELL ONLY	7.0000	20.00	140.00
11 ANALYSES	GW GROUNDWATER				
		A BTEX+NAPTH+MTBE	27.0000	100.00	2,700.00
		F EDB	27.0000	55.00	1,485.00
16 SUBSEQUENT SURVEY					
		SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL					
		A1 WASTEWATER - PURGING/SAMPLING	3.0000	90.00	270.00
		C SOIL (TREATMENT/DISPOSAL)	15.0000	50.00	750.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	21,010.00	3,151.50
				Total Amount	24,161.50

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

JUN 17 2004

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
P O BOX 1168
BALTIMORE MD 21203-1168

Re: One Stop (Former SC-576), 201 N. Mine St., McCormick, SC
UST Permit #06443; CA #22166; MWA #UMW-18407
Release reported December 13, 1989
Monitoring report received May 19, 2004
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site using Gage Group as your contractor. The report shows that the dissolved-phase plume remains undefined downgradient of MW-25 and MW-26. Therefore, the Program requests that field screening be completed in the areas indicated on the enclosed map, and that up to three additional shallow monitoring well be installed to define the plume. Locations of the shallow monitoring wells will be determined from the field screening results. Costs for up to six groundwater samples have been approved for the field screening. The new wells and all existing monitoring wells should be sampled for BTEX, naphthalene, MtBE and 1,2-DCA by EPA method 8260 and for EDB by EPA method 8011 (note that the required detection limit for EDB is 0.02 µg/L). Wells with free-phase petroleum product should be gauged to determine product thickness in the wells. These data will be used to determine cleanup levels for active corrective action at this site. The proposed field screening locations may be modified if required.

Cost Agreement #22166 has been approved in the amount shown on the enclosed cost agreement form for the field screening, monitoring well installation and sampling. The necessary monitoring well approval is enclosed. Please have your contractor submit results to the Program in an assessment report containing information stipulated in the monitoring well approval and the following items:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Program, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well.
- Field screening/soil boring logs, monitoring well record forms and groundwater screening results should be included in the appendix.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

Gage Group can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

The assessment report and invoice are due within ninety (90) days from the date of this letter. An interim invoice may not be submitted for this scope of work. If the invoice is not submitted within one hundred and twenty (120) days from the date of this letter, monies allocated to pay for the work will be uncommitted. This means that invoices for the scope of work submitted after the 120-day deadline will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated costs must be preapproved by the Department for the costs to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The Program grants preapproval for transportation of virgin petroleum-contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on-site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or groundwater.

On all correspondence concerning this site, please reference UST Permit #06443 and CA #22166. If there are any questions concerning this project, please contact me by phone at (803) 896-6649 or (800) 826-5435 (within South Carolina only), or by fax at (803) 896-6245.

Sincerely,

John D. Surber, Jr.., Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Site map
CoC Table for May 2004 sampling event
Approved cost agreement
Monitoring well approval

cc: Mr. Mike Hudgins, Gage Group, 521 Clemson Rd., Columbia, SC 29229 (w/enc)
Dale Surrett, McCormick County Administrator,Rt. 2 Box 84AAA, McCormick, SC 29835(w/out enc)
Technical file (w/enc)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

Monitoring Well Installation Approval Form

Date of Issue: June 14, 2004 Approval No.: UMW-18407

Approval is hereby granted to:	Gage Group
(On behalf of):	Crown Central Petroleum
UST Permit #:	06443: One Stop
Site Address:	201 N. Mine St., McCormick, SC
County:	McCormick

This approval is for the construction of three shallow monitoring well(s) in accordance with the construction plans and technical specifications outlined in the South Carolina Well Standards and Regulations (R.61-71). The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to John Surber at (803) 896-6649 or surberjd@dhec.sc.gov and Uwe Klauck at (864) 223-0333 or klauckuw@dhec.sc.gov.**

5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

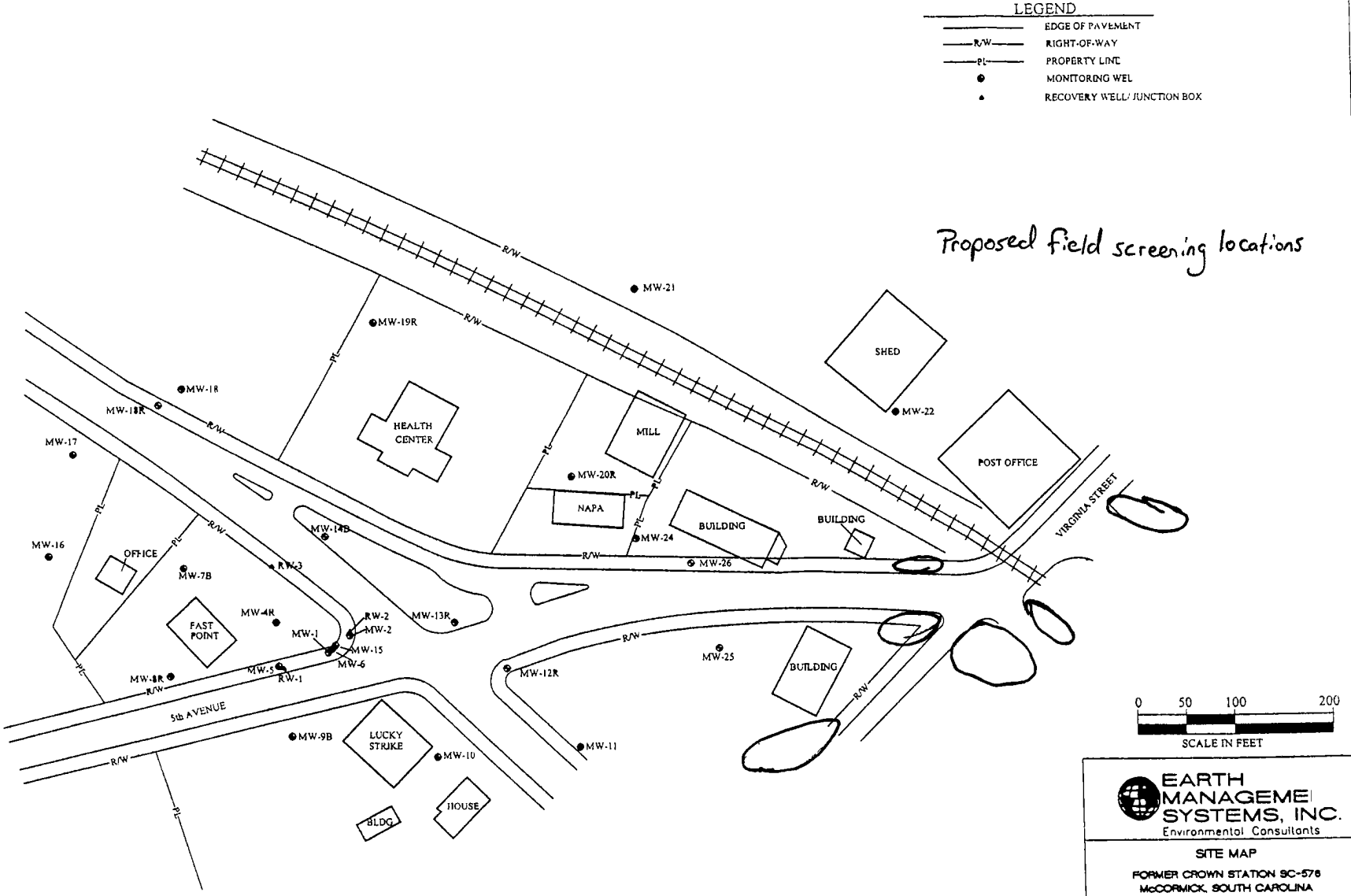
7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

John D. Surber, Jr., Hydrogeologist
Southwestern SC Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: Technical File



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

SITE MAP

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY	DATE	CHECKED BY	DATE
DDD	10/27/02	GP	10/28/02
SCALE 1 INCH = 100 FEET		DRAWING SIZE B	
JOB NO: 2125-036		FIGURE 2	

I:\CTS\2001\JOBS\2123-036\CROWN.DWG

06443 **5/19/04 sampling data**

MW	B	T	E	X	M	N	EDB
MW-1	*FP*	*(3.22')*					
MW-2	*FP*	*(3.25')*					
MW-4R	*FP*	*(1.45')*					
MW-5	*FP*	*(0.44')*					
MW-6	13000	410	200	2200	13000	<250	0.95
MW-7B	<5	<5	<5	<15	<5	<5	<.02
MW-8	dry						
MW-8R	<5	<5	<5	<15	<5	<5	<.02
MW-9B	<5	<5	<5	<15	<5	<5	<.02
MW-10	<5	<5	<5	<15	<5	<5	<.02
MW-11	<5	<5	<5	<15	<5	<5	<.02
MW-12R	160	3.2	<5	<15	<5	<5	<.02
MW-13	*FP*	*(0.02')*					
MW-13R	*FP*	*(0.22')*					
MW-14B	*FP*	*(0.08')*					
MW-15	5.4	<5	<5	<15	8.1	<5	<.02
MW-16	<5	<5	<5	<15	<5	<5	<.02
MW-18R	<5	<5	<5	<15	<5	<5	<.02
MW-19	<5	<5	<5	<15	<5	<5	<.02
MW-19R	<5	<5	<5	<15	55	<5	<.02
MW-20	*FP*	*(2.7')*					
MW-20R	15000	31000	3500	16400	1200	950	85
MW-21R	<5	<5	<5	<15	<5	<5	<.02
MW-22	<5	<5	<5	<15	<5	<5	<.02
MW-24	<5	<5	<5	<15	<5	<5	<.02
MW-25	2200	<100	<100	<245	680	540	0.52
MW-26	8900	20000	4500	25500	<500	2300	70

12/5/03 (Prior to AFVR Event):

MW	FP (ft)
MW-1	4.8
MW-1	4.8
MW-4R	2.6
MW-5	2

Approved Cost Agreement 166

Facility: 06443 ONE STOP
SURBERJD
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		A EQUIPMENT	2.0000	500.00	1,000.00
		B PERSONNEL	4.0000	250.00	1,000.00
06 SOIL BORINGS (DRILLED)					
		SOIL BORINGS & FLD SCREENING	240.0000	17.00	4,080.00
08 ABANDONMENT					
		ABANDONMENT	240.0000	4.00	960.00
09 WELL INSTALLATION					
		B WATER TABLE (DRILLED)	120.0000	38.00	4,560.00
10 SAMPLE COLLECTION					
		A GROUND WATER	21.0000	55.00	1,155.00
		E GAUGE WELL ONLY	8.0000	20.00	160.00
11 ANALYSES	GW GROUNDWATER	A BTEX+NAPTH+MTBE	27.0000	100.00	2,700.00
		F EDB	21.0000	55.00	1,155.00
16 SUBSEQUENT SURVEY					
		SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL					
		A1 WASTEWATER - PURGING/SAMPLING	4.0000	90.00	360.00
		C SOIL (TREATMENT/DISPOSAL)	4.0000	50.00	200.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	17,590.00	2,638.50
				Total Amount	20,228.50

BOARD:
Elizabeth M. Hagood
Chairman

Mark B. Kent
Vice Chairman

Howard L. Brilliant, MD
Secretary

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

BOARD:
Carl L. Brazell

Louisiana W. Wright

L. Michael Blackmon

Coleman F. Buckhouse, MD

JAN 13 2004

MR JED HEAMES
JA JONES ENVIRONMENTAL SERVICES
CHARLESTON NAVAL COMPLEX
1849 AVENUE F
NORTH CHARLESTON SC 29405

Re: **Notice to Proceed**
Bid # SB-21868-3/18/03; PO# 463276

Dear Mr. Heames:

Based on the award of the referenced bid package, enclosed are the information packets to conduct fourteen (14) groundwater-sampling events. The packets contain all necessary information for work to begin. The facility has been assigned an individual Cost Agreement (CA) number as listed below. Please reference the CA number and Purchase Order #463276 on the appropriate invoice submitted for payment against the facility.

UST Permit #	Priority Rank	Facility	County	# wells	UST Project Manager	Parameters-Groundwater	PACE CA#	JA Jones CA#
00633	5	SCDOT Maint.	Anderson	10	R, Miner	BTEX, Naph, MTBE, Nitrate, & Ferrous Iron	20902	20903
04214	2B	Sunbelt Rental	Spartanburg	9	D. Thoma	BTEX, Naph, MTBE	21007	21008
17289	2B	Former Store	Chester	9	K. Doran	BTEX, Naph, MTBE, EDB, & Lead	20909	20908
03176*	1D	Longtown Corner	Fairfield	8	D. Thoma	BTEX, Naph, MTBE	21022	21023
12641	2B	Hornes Gen. Store	Newberry	16	S. Block	BTEX, Naph, MTBE	20929	20930
04787*	2A	Northside Amoco	Greenwood	22	S. Block	BTEX, Naph, MTBE	21037	21038
06443	2B	Fast Point 34	McCormick	30	K. Doran	BTEX, Naph, MTBE, & EDB	20938	20937
13226*	2b	Frm Harvey Harrlesons	Lexington	16	D. Thoma	BTEX, Naph, MTBE	21041	21042
06157	2B	Weeds Landing	Lexington	6	R. Miner	BTEX, Naph, MTBE, Nitrate, Sulfate, & Fe2+	20964	20965
18714	3B	Handy Hut	Richland	15	D. Thoma	BTEX, Naph, MTBE, & EDB	21004	21005
06255	2B	Turner's Grocery	Marion	8	R. Miner	BTEX, Naph, MTBE, Nitrate, Sulfate, & Fe2+	20719	20720
14508	2B	Jack Hooks West	Horry	7	R. Miner	BTEX, Naph, MTBE, EDB, Nitrate, Sulfate, & Fe2+	20953	20954

18231	2B	Jack Hooks East	Horry	6	R. Miner	BTEX, Naph, MTBE, EDB Nitrate, Sulfate, & Fe2+	20950	20951
03714	2B	Gas Plus	Georgetown	28	K. Doran	BTEX, Naph, MTBE, EDB, & Lead	21019	21018

*** These facilities should be sampled on or before February 16, 2004. If sampling is not completed by this date, a late fee of $25 per day may be levied in accordance with Special Condition 15.**

JA Jones Environmental Services will perform services at the sites on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. **Please coordinate access to the facility with the property owner**. Contact information has been provided in the information packet. The Bureau grants pre-approval for transportation of drums of groundwater from the referenced sites to a permitted treatment facility. The contaminated groundwater must be properly stored in labeled 55-gallon drums or equivalent containers. The contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included with the final report.

Please contact me with the sampling schedule before commencing work at these facilities. If you have any questions or need further assistance, please contact me at (803) 896-6397 or thomadl@dhec.sc.gov.

Sincerely,

Debra L. Thoma

Debra L. Thoma, Hydrogeologist
State Lead & Field Services Section
Assessment & Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management
Telephone: (803) 896-6240; Fax (803) 896-6245

enc: Information Packets
Approved Cost Agreements

cc: Sherri Stabel, PACE Analytical Services, 9800 Kincey Ave. Ste. 100, Huntersville, NC, 28078
(w/ Approved Cost Agreements)
Technical/Read File

Approved Cost Agreement [illegible]38

Facility: 06443 FAST POINT 34
DORANKM
PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
11 ANALYSES						
	GW GROUNDWATER	A	BTEX+NAPTH+MTBE	30.0000	30.00	900.00
		F	EDB	30.0000	40.00	1,200.00
				Total Amount		2,100.00

Approved Cost Agreement : 37

Facility: 06443 FAST POINT 34

DORANKM

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		B	PERSONNEL	2.0000	59.95	119.90
10 SAMPLE COLLECTION						
		A	GROUND WATER	20.0000	19.95	399.00
		D	GROUNDWATER NO-PURGE	10.0000	17.95	179.50
17 DISPOSAL						
		A2	WASTEWATER - PUMPING TEST	100.0000	0.50	50.00
				Total Amount		748.40

BOARD:
Elizabeth M. Hagood
Chairman

Mark B. Kent
Vice Chairman

Howard L. Brilliant, MD
Secretary

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

BOARD:
Carl L. Brazell

Louisiana W. Wright

L. Michael Blackmon

Coleman F. Buckhouse, MD

DEC 30 2003

MR JOHN WOLF
CROWN CENTRAL PETROLEUM
8701 PARK CENTRAL DR
STE 100
RICHMOND VA 23227

Re: Fast Point 34, 201 N. Mine St., McCormick, SC
UST Permit # 06443
AFVR Report received December 17, 2003
McCormick County

Dear Mr. Wolf:

On December 5, 2003, Terry Environmental conducted an 8-hour Aggressive Fluid Vapor Recovery event to remove free product from monitoring wells MW-1, 2, 4R, and 5 at the referenced facility. A copy of the report is enclosed for your records. The next scope of work will be a comprehensive ground water sampling event in approximately three months to verify the free product has not returned. You will receive a copy of the results upon review by this Office.

On all correspondence regarding this site, please reference UST Permit #06443. If you have any questions concerning this correspondence, please contact me by phone at (803) 896-6586, (800) 826-5435 (within South Carolina only), by fax at (803) 896-6245, or by email at dorankm@dhec.sc.gov.

Sincerely,

Karen M. Doran

Karen M. Doran, Hydrogeologist
State Lead & Field Services Section
Assessment & Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: AFVR Event Report

cc: Mahesh Patel, 2811 Reidville Rd., Suite 11, Spartanburg, SC 29301 (w/ enc.)
Technical File (w/o enc.)

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

NOV 0 7 2003

JASON TERRY
TERRY ENVIRONMENTAL INC
PO BOX 41784
CHARLESTON SC 29423

Re: **Notice to Proceed**
Fast Point 34, 201 Hwy. 28 & 32, McCormick, SC
UST Permit # 06443, CA # 20231
SB-19572-05/28/02-EMW; PO # 413548
BAQC UST Modeling Information received October 20, 2003
McCormick County

Dear Mr. Terry:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced correspondence. You may commence with the Aggressive Fluid Vapor Recovery event at the referenced facility. The final report and invoice should be submitted on or before December 15, 2003. If upon mobilization to the site, the monitoring well does not contain measurable free phase product, the AFVR Event should not be conducted and the UST Program contacted immediately.

Cost agreement (CA) # 20231 has been approved in the amount shown on the enclosed cost agreement spreadsheet and will be kept on file so that compensation can begin. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with bid number SB-19572-05/28/02-EMW. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work.

Future invoices and/or other criteria included therein must comply with current State Underground Petroleum Environmental Response Bank (SUPERB) criteria per Section 44-2-20(2). Please reference Cost Agreement #20231 on all pertinent invoices and correspondence. Please note that Sections 44-2-110(4) and 44-2-130(B) of the SUPERB Statute state that no costs will be allowed (considered for payment) unless prior approval from the Department is obtained. If for any reason there is a change in this cost agreement, any associated changes to this cost agreement must be pre-approved by this Department in order for Terry Environmental, Inc. to seek future cost compensation. Any item(s) not clearly or completely addressed in the report (disposal manifest for generated ground water, etc.) WILL NOT be compensated by the SUPERB Account.

The Department grants pre-approval for transportation of free phase product and petroleum contaminated groundwater from the referenced site to a permitted treatment facility. The free product and contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included in the report.

On all correspondence regarding this site, please reference the UST Permit #06443 and Cost Agreement # 20231. If you have questions concerning this correspondence, or would like to submit additional information, please contact me by phone at (803) 896-6586, by fax at (803) 896-6245, or by email at dorankm@dhec.sc.gov.

Sincerely,

Karen M Doran

Karen M. Doran, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: John Wolf, Crown Central Petroleum, 8701 Park Central Dr., Ste. 100, Richmond, VA 23227
Upper Savannah District EQC
Technical File

SCDHEC/UST/KMD/110503

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

OCT 13 2003

JASON TERRY
TERRY ENVIRONMENTAL INC
PO BOX 41784
CHARLESTON SC 29423

Re: Fast Point 34, 201 Hwy. 28 & 32, McCormick, SC
UST Permit # 06443, CA # 20231
SB-19572-05/28/02-EMW; PO # 413548
McCormick County

Dear Mr. Terry:

An 8-hour Aggressive Fluid Vapor Recovery event is needed to remove free product from monitoring well(s) (MW-1, MW-2, MW-4R, MW-5, MW-13R, and MW-14B) at the referenced facility. A Bureau of Air Quality UST Modeling Form shall be completed and submitted to my attention within thirty days from the date of this correspondence. Upon review, you will receive a Notice to Proceed. The AFVR event shall not commence prior to receipt of this Notice to Proceed. Upon mobilization to the site, if there is no product present, the AFVR event should not be conducted and notification should be given to the UST Program.

A cost agreement (CA) # 20231 has been approved in the amount shown on the enclosed cost agreement spreadsheet and will be kept on file so that compensation can begin. **The South Carolina Department of Health and Environmental Control (SCDHEC) reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with bid number SB-19572-05/28/02-EMW.** Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work.

The Department grants pre-approval for transportation of free phase product and petroleum contaminated groundwater from the referenced site to a permitted treatment facility. The free product and contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included in the report.

A copy of the approved assessment cost agreement is enclosed for your information. Future invoices and/or other criteria included therein must comply with current State Underground Petroleum Environmental Response Bank (SUPERB) criteria per Section 44-2-20(2). Please reference Cost Agreement #20231 on all pertinent invoices and correspondence.

Please note that Sections 44-2-110(4) and 44-2-130(B) of the SUPERB Statute state that no costs will be allowed (considered for payment) unless prior approval from the Department is obtained. If for any reason there is a change in this cost agreement, any associated changes to this cost agreement must be pre-approved by this Department in order for Terry Environmental, Inc. to seek future cost compensation.

Any item(s) not clearly or completely addressed in the report (disposal manifest for generated ground water, etc.) WILL NOT be compensated by the SUPERB Account.

On all correspondence regarding this site, please reference the UST Permit #06443 and Cost Agreement # 20231. If you have questions concerning this correspondence, or would like to submit additional information, please contact me at (803) 896-6586.

Sincerely,

Karen M Doran

Karen M. Doran, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

enc: Approved Cost Agreement # 20231
Bureau of Air Quality UST Modeling Form
Information Packet

cc: John Wolf, Crown Central Petroleum, 8701 Park Central Dr., Ste. 100, Richmond, VA 23227
Upper Savannah District EQC
Technical File

Approved Cost Agreement 231

Facility: 06443 FAST POINT 34

DORANKM

PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		A EQUIPMENT	1.0000	130.00	130.00
17 DISPOSAL					
		A2 WASTEWATER - PUMPING TEST	1,000.0000	0.40	400.00
23 EFR					
		A 8 HOUR EVENT	1.0000	1,240.00	1,240.00
			Total Amount		1,770.00

PERMISSION FORM

UNDERGROUND STORAGE TANK OWNER

UST Permit #06443

If you are the owner of the former or existing underground storage tanks or are designated as their authorized representative, but do not own the property, please complete this form.

I, John Wolf (CCPC) certify that I am the former legal owner of the underground storage tank(s) located at the facility identified below or serve as the authorized representative for the UST owner. I grant permission to the South Carolina Department of Health and Environmental Control (SCDHEC) to secure on my behalf services of a contractor to conduct assessment and corrective action activities, as required. The contractor will be designated as my contractor for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will be responsible for obtaining right-of-entry from the property owner and notifying me of all activities that are necessary prior to their initiation and will promptly provide to me a copy of each environmental report. I understand that I may choose to select my own contractor at the completion of any phase of work by notifying the Division of Underground Storage Tank Management in writing.

Name of Facility Former Fast Fare SC-576 Phone # (804)515-8687

Street Address of Facility 201 Highways 28 & 32

Town, City, District, Suburb McCormick

Name of nearest intersecting street, road, highway, alley Highways 28 & 32

Is this facility within the city limits? (yes or no) unknown

Does a public water or sewer utility service this facility? (yes or no) unknown, if no, please provide the name and phone number of a person that we can contact that can assist in the location of private water and septic tank lines , phone number

Were underground storage tanks previously removed from the ground at this facility? (yes or no) ~~unknown~~* If yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation Phone number

*tanks were sold to Lil Cricket Food Stores on October 13, 1992

Is the property currently leased or rented to someone? (yes or no) unknown. If yes, please provide their name and phone number and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the former or existing underground storage tanks, they should be moved before SCDHEC's contractor gets to the site.

NAME of former UST owner (Please Print): Fast Fare, Inc.

Phone Number (~~Home~~ work) (410) 659 4744 (work) (804) 515 8687

Signature of former UST Owner: J. Wolf

Witness: Carole L. Hines

Date: August Month 14 Day 2003 Year

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM

Phone (803) 896-6240 Fax (803) 896-6245

JUN 2 4 2003

JOHN WOLF
CROWN CENTRAL PETROLEUM
8701 PARK CENTRAL DR STE 100
RICHMOND VA 23227-1151

Re: Fast Point 34, (Former SC-576), 201 Hwy 28 & 32, McCormick, South Carolina
UST Permit #06443
Release reported December 13, 1989
Final assessment report received June 23, 2003
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced report submitted by Earth Management Systems, Inc. on your behalf. The report indicates that active corrective action is necessary at the site to ensure there is no potential impact to human health or the environment.

Funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account will soon be available for implementation of an acceptable method of corrective action. The selected technology must reduce the petroleum CoC concentrations to site-specific target levels (SSTLs) determined by the Program. The corrective action must be performed by a SCDHEC-certified site rehabilitation contractor as required by SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98.

The SUPERB Site Rehabilitation and Fund Access Regulations R.61-98 require the UST owner/operator to develop and implement a reasonable, cost-effective corrective action. As the owner/operator on record, you have two options as to how to proceed with this requirement: owner/operator lead and state lead.

If you select the owner/operator lead option, you must select a contractor to perform the corrective action. The corrective action must be performed by a SCDHEC-certified site rehabilitation contractor as required by SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98. In order to assist you in determining the clean-up technology, time frame, clean-up levels, and associated costs, the Program will prepare a technical specification package for you to use for your contractor solicitations. In addition to the your solicitations, the Program will announce the request for solicitations in the South Carolina Business Opportunities, a bi-weekly state government publication. This announcement will clearly indicate that you will make the contractor selection to implement an accepted method of corrective action at a reasonable cost. The Program strongly suggests that a written contract between you and the selected contractor be developed following the completion of the solicitation process. The only parties to this contract would be you and the contractor you choose. Since the Program's only function would be to monitor the corrective action

activities, the Program would not be party to your contract. To utilize the owner/operator lead option, please sign and return the enclosed Active Corrective Action Options Form within **15 days** of the date of this letter. If a response is not received within **15 days** of the date of this letter the Program will be assume that you wish to continue with the owner/operator lead for corrective action and a technical specification package will be prepared and advertised in the South Carolina Business Opportunities publication.

If you choose the state lead option, the Program will procure a contractor to perform corrective action on your behalf. Under this option, you will relinquish your right under R.61-91 to choose your contractor. To utilize the state lead option, please sign and return the applicable Permission and Right-of-Entry forms within **15 days** of the date of this letter. If a response is not received within **15 days** of the date of this letter the Program will be assume that you wish to continue with the owner/operator lead for corrective action and a technical specification package will be prepared and advertised in the South Carolina Business Opportunities publication.

On all correspondence or inquiries regarding this project, please reference UST Permit #06443. If you have any questions, please contact me at (803) 896-6675 or (800) 826-5435 (within South Carolina only).

Sincerely,

Stephen R. Maxwell, P.G., Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division

enc: Active Corrective Action Options form
Permission/Right-of-Entry forms

cc: Technical file (w/o encs)

EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

P.O. Box 24287 Columbia, SC 29224
3025 McNaughton Drive Columbia, SC 29223
(803) 736-3800 FAX (803) 736-3050

RECEIVED
JUN 23 2003
UNDERGROUND STORAGE TANK PROGRAM

June 19, 2003

Mr. Stephen Maxwell
SC Department of Health and Environmental Control
Underground Storage Tank Program
2600 Bull Street
Columbia, South Carolina 29201

RE: Former SC-576 Facility
201 Hwys 28 & 32
McCormick, South Carolina
UST Permit No. 06443, C.P. No. 17641
EMS Job No. 2125-036

Dear Mr. Maxwell:

Please find enclosed a copy of the Ground Water Sampling and Analysis Report and a copy of the associated invoice for the former Crown SC-576 facility.

If there are any questions regarding this submittal, please contact us at (803) 736-3800.

Sincerely,

Earth Management Systems, Inc.

Norman E. Partin, Jr., C.H.M.M.
Project Environmental Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

NEP/PMH:np

Enclosure

cc: Mr. John Wolf / CrownCen Marketing Co.

Task F

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM

Phone (803) 896-6240 Fax (803) 896-6245

NOV 19 2002

JOHN WOLF
CROWN CENTRAL MARKETING CO
8701 PARK CENTRAL DR STE 100
RICHMOND VA 23227-1151

Re: Fast Point 34 (Former SC-576), 201 Hwys 28 & 32, McCormick, South Carolina
UST Permit #06443; CA #17641; MWA #UMW-16725
Release reported December 13, 1989
Additional Assessment Report received November 4, 2002
McCormick County

Dear Mr. Wolf:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site utilizing your own contractor. The Program has reviewed the Additional Assessment Report submitted by Earth Management Systems, Inc. The results indicate that chemicals-of-concern (CoC) are present in groundwater at concentrations above allowable risk-based screening levels (RBSLs), and in order to define the groundwater plume replacement of dry wells and groundwater sampling is needed. Therefore, Cost Agreement #17641 has been approved in the amount shown on the enclosed Approved Cost Agreement to install six monitoring wells (see attached map) and sample all monitoring wells associated with this release.

Assessment activities at the site should begin immediately upon receipt of this letter. The required monitoring well approval is enclosed. Please contact the Program prior to well installation for concurrence regarding the final well locations.

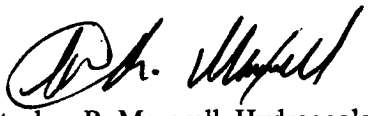
A report of findings and invoice is due within **90 days** from the date of this letter. An interim well drilling invoice may be submitted for this scope of work. If the invoice and completed report are not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor. Also note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Program is obtained. If for any reason additional tasks are necessary, these additional tasks and the associated costs must be preapproved by the Program for the costs to be paid. SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable, and SCDHEC reserves the right to audit project records at any time during the project or after completion of work.

The Program grants preapproval for transportation of virgin petroleum-contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil and groundwater must be properly stored in labeled containers. The contaminated soil and groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and groundwater on site. The SUPERB Account will not compensate for transportation or treatment of clean ground water.

On all correspondence concerning this site, please reference **UST Permit #06443 and CA #17641**. If there are any questions concerning this project, please contact me at (803) 896-6675 or (800) 826-5435 (within South Carolina only).

Sincerely,



Stephen R. Maxwell, Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division

enc: Approved Cost Agreement #17641 (ACA)
Monitoring Well Approval #UMW-16725 (MWA)
Site Map with Approximate Well Locations

cc: P. Michael Hudgins, Earth Management Systems, Inc.
PO Box 27285
Columbia, SC 29224 (w/ MWA, ACA & Site Map)
Technical File (w/ MWA and ACA)

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: November 7, 2002 Approval No.:UMW-16725

Approval is hereby granted to:	Earth Management Systems, Inc.
(On behalf of):	Crown Central Petroleum
UST Permit #:	06443
County:	McCormick

This approval is for the construction of six Type II monitoring wells in accordance with the construction plans and technical specifications outlined in the Tier II Assessment Document. The wells are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Stephen Maxwell at (803) 896-6675 or maxwelsr@dhec.state.sc.us.**

5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Stephen R. Maxwell, Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division

cc: Upper Savannah District EQC
John Wolf, Crown Central Petroleum
Technical File

SCDHEC/BLWM/UST/SRM/110702

LETTER OF TRANSMITTAL

Earth Ma . _ement Systems, Inc
3025 McNaughton Drive
Columbia, South Carolina 29223

(803) 736-3800 / Fax: (803) 736-3050

TO: Mr. Stephen Maxwell

SCDHEC

2600 Bull Street

Columbia, South Carolina 29201

DATE 10/30/2002	JOB NO. 2125-036
RE: Crown SC-576, UST No.06443	

WE ARE SENDING YOU **X** Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order

COPIES	DATE	NO.	DESCRIPTION
1	10/30/2002		Well Replacement and GWS Report
1	10/30/2002		Assessment Component Invoice No. 2125-036-2557 Sent to Laura HKP

THESE ARE TRANSMITTED as checked below:

X For approval
☐ For your use
☐ As requested
☐ For review and comment
☐ FOR BIDS DUE _____ 20__

☐ Approved as submitted
☐ Approved as noted
☐ Returned for corrections

☐ Resubmit ___ copies for approval
☐ Submit ___ copies for distribution
☐ Return ___ corrected prints

REMARKS: **Mr. Maxwell – Enclosed is the above referenced report and invoice. The original SUPERB Assessment Component Invoice has been forwarded to Ms. Pat Holland. This report and invoice will close Cost Proposal No. 15122.**

RECEIVED
NOV 0 4 2002
Underground Storage Tank Program

COPY TO: _____

SIGNED: **Gene Partin**

If enclosures are not as noted, kindly notify us at once.

) H E C
ROMOTE PROTECT PROSPER
)00 Bull Street
)lumbia, SC 29201-1708

Mo ng Well Installation Approval Fo

Date of Issue: January 7, 2002 Approval No.:UMW-15773

Approval is hereby granted to:	Earth Management Systems
(On behalf of):	Crown Central Petroleum
UST Permit #:	06443
County:	McCormick

This approval is for the construction of one of permanent Type II monitoring well in accordance with the construction plans and technical specifications outlined in the Tier II Assessment Document. The well is to be constructed within the surficial aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Stephen Maxwell at (803) 898-4325 or maxwelsr@columb26.dhec.state.sc.us.**

5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Stephen R. Maxwell, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

cc: Upper Savannah EQC District
Technical File

SRM/SCDHEC/UST/010702

) H E C
<OMOTE PROTECT PROSPER
00 Bull Street
lumbia, SC 29201-1708

JNDERGROUND STORAG .NK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
Phone (803) 898-4350 Fax (803) 898-4330

NOV 19 2001

Mr. Jim Janson
Crown Central Petroleum
8227 Cloverleaf Drive, Suite 304
Millersville, Maryland 21108

Re: Fast Point 34, 201 Hwy 28 & 32, McCormick, South Carolina
UST Permit #06443; CP #15122; MWA# UMW-15629
Release Reported December 13, 1989
Monitoring Report received November 1, 2001
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) attempted to conduct a comprehensive round of ground-water sampling at the referenced facility. However, seven of the monitoring wells (MW-4, MW-8, MW-10, MW-11, MW-12, MW-13, and MW-20) were dry and could not be sampled.

Some of these monitoring wells (MW-4, MW-8, MW-13, MW-19, and MW-20) were critical in determining the current status of the ground-water contamination. Therefore, these wells must be replaced and all monitoring wells associated with the referenced release must be sampled to evaluate the facility for future action. Since the water table has dropped about seven feet since these wells were last sampled in 1996, compensation from the SUPERB account has been approved for the installation of these wells.

Earth Management can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor. Approval to install three shallow ground water monitoring wells has been provided to your environmental consultant; a copy is enclosed for your records.

A report of findings and invoice is due within 60 days from the date of this letter. An interim well drilling invoice may be submitted for this scope of work. If the invoice and completed report are not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Also, note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Program is obtained. If for any reason additional tasks are necessary, these additional tasks and the associated costs must be preapproved by the Program for the costs to be paid. SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable, and SCDHEC reserves the right to audit project records at any time during the project or after completion of work.

The Program grants preapproval for transportation of virgin petroleum-contaminated ground water from the referenced site to a permitted treatment facility. The contaminated ground water must be properly stored in labeled containers. The contaminated ground water must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of ground water on site. The SUPERB Account will not compensate for transportation or treatment of clean ground water.

On all correspondence regarding this site, please reference UST Permit #06443. Should you have any questions, please feel free to contact me at (803) 898- 4325.

Sincerely,

Stephen R. Maxwell, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

enc: Site map

cc: Michael Hudgins, Earth Management Systems, Inc.
3025 McNaughton Drive
Columbia, SC 29223
Technical file

) H E C
ROMOTE PROTECT PROSPER
00 Bull Street
olumbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: November 7, 2001 Approval No.:15629

Approval is hereby granted to: Earth Management Systems, Inc.
(On behalf of): Crown Central Petroleum
UST Permit #: 06443
County: McCormick

This approval is for the construction of five of permanent monitoring wells in accordance with the construction plans and technical specifications outlined in the Tier II Assessment Document. The wells are to be constructed within the surficial aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. **A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Stephen Maxwell at (803) 898-4325 or maxwelsr@columb26.dhec.state.sc.us.**

5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Stephen R. Maxwell, Hydrogeologist
State Lead and Field Services Section
Assessment and Corrective Action Division

cc: Upper Savannah EQC District
Jim Janson, Crown Central Petroleum, 8227 Cloverleaf Dr., Suite 304, Millersville, MD 21108
Technical File

SRM/SCDHEC/UST/110701

EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

P.O. Box 24287 Columbia, SC 29224
3025 McNaughton Drive Columbia, SC 29223
(803) 736-3800 FAX (803) 736-3050

October 31, 2001

Mr. Steven R. Maxwell
SCDHEC
Bureau of Land and Waste Management
UST Program
2600 Bull Street
Columbia, SC 29201

Re: Submittal of Ground Water Sampling Report
Former Crown SC-576, 201 Highway 28 and 32, McCormick, SC
SCDHEC Site # 06443, Cost Proposal # 14500
Earth Management Systems Project No. 2125-036

Dear Mr. Maxwell:

Earth Management Systems, Inc. is pleased to submit this report of ground water sampling and the associated invoice at the above referenced site. The work has been performed in accordance with SCDHEC guidelines for Risk-Based Corrective Action Evaluation and the above referenced SCDHEC cost proposal.

The results of the analysis indicate free product is present at the site, and the extent of hydrocarbon impact has not been defined. A Tier II Assessment is recommended to be performed at the site in order to rank the site according the current risk.

Please do not hesitate to contact us if you have any questions or comments regarding this report.

Respectfully submitted,

EARTH MANAGEMENT SYSTEMS, INC.

P. Michael Hudgins PG
Senior Hydrogeologist

CC: Mr. Jim Janson / Crown Central Petroleum Corporation

D · H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE TANK PROGRAM
2600 Bull Street, Columbia, South Carolina 29201
Phone (800) 826-5435 Fax (803) 898-4330

SEP 06 2001

Mr. Jim Janson
8227 Cloverleaf Drive, Suite 304
Millersville, Maryland 21108

Re: Fast Point 34, 201 Hwy 28 & 32, McCormick, South Carolina
UST Permit #06443, CP #14500
Release Reported December 13, 1989
McCormick County

Dear Mr. Janson:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site utilizing your own contractor. Cost Proposal #14500 has been approved in the amount shown on the enclosed cost proposal form to sample all monitoring wells associated with the release. The monitoring report submitted should include the following:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Ground water elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Department, shall be presented in tabular form. Ground water laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A ground water elevation contour map of the sire based on current ground water potentiometric data.
- A CoC map based on current ground water laboratory analytical data. The ground water data should be adjacent to the relevant monitoring well.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

A Report of Findings and the invoice is due within 60 days from the date of this letter. Interim invoices may not be submitted for this scope of work. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

Your contractor can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor. Also, note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any

reason additional tasks are necessary, these additional tasks and the associated costs must be preapproved by the Department for the costs to be paid. SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of work.

The Department grants preapproval for transportation of virgin petroleum contaminated soil and groundwater from the referenced site to a permitted treatment facility. The contaminated soil or groundwater must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated soil and/or ground water must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or ground water on site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or ground water.

On all correspondence concerning this site, please reference **UST Permit #06443 and CP #14500.** If there are any questions concerning this project, please contact me at (803) 898-4325 or (800) 826-5435 (within South Carolina only).

Sincerely,

Stephen R. Maxwell, Hydrogeologist
State Lead and Field Services
Underground Storage Tank Program
Bureau of Land and Waste Management

enc: Finance Approved Assessment Component Cost Proposal

cc: Technical Read Files (w/out enc)
Financial File (w/enc)

SRM
SCDHEC/UST/082101

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

FAX MESSAGE

Date: 9/20/01

Number of Pages including Cover sheet: 3

Please Deliver This Fax Message

TO: Mike Hudgins
Name

Qore Property Sciences
Organization/Department

(803) 935-1606
Fax Number

(803) 935-7700
Phone Number

FROM: Steve Maxwell

Bureau of Land & Waste Management
Underground Storage Tank Program

(803) 898-4330
Fax Number

(803) 898-4350 OR (800)-826-5435 in SC only!
Phone Number

SUBJECT/COMMENT: Fast Point #34 Site # 06443

Mike, The attached Directive went out w/o being CC: to Qore. I wanted to make sure you guys recieved it on Your end Sorry for the mix up

SLM

UNDERGROUND STORAGE TANK (UST) OWNER/OPERATOR LEAD INFORMATION SHEET

1. CONTRACTOR OF CHOICE

As the UST Owner/Operator of Facility #06443 I would like to use the contractor or person(s)* listed below and request that they represent me for:

☐ IGWA
☑ All future assessment scopes. **

Name of Contractor/Person(s) QORE PROPERTY SCIENCES /P. Michael Hudgins

Address 3 Technology Circle
Columbia, SC 29203

Telephone Number (803) 935-1700

Note: After September 20, 1997, rehabilitation activities must be performed by a SC Certified Site Rehabilitation Contractor.

*indicate if the person listed is your own employee

** if you would like the contractor to perform all future assessent activities at this and/or other UST sites that have confirmed releases, please provide a list of all sites on your letterhead and provide the information requested in items 2 and 3 below within the context of the letter.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above? ____ Yes ____X No (please initial)

Financial Relationship: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

Familial Relationship: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great grandchild, step grandparent, step great grandparent, step grandchild, step great grandchild, or fiancee.

3. PAYMENT

The first $25,000.00 in eligible site rehabilitation costs will be applied against the applicable SUPERB deductible, upon submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment.

For eligible costs exceeding the $25,000.00 deductible, you can pay the contractor and, upon the submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment, be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (check one)

____ For eligible costs exceeding the deductible, I request that payment be made to me after I have paid the contractor.

✓ For eligible costs exceeding the deductible, I request that payment be made directly to the contractor.

(Note: all costs must receive prior financial approval from the Department regardless of payment option.)

Underground Storage Tank Owner/Operator Signature Jane D. Hanson

Date 5/31/01

RECEIVED
OCT 14 1999
DIVISION OF UNDERG
STORAGE TANK

UNDERGROUND STORAGE TANK OWNER

PERMISSION FORM - FACILITY ID #06443

If you are the former owner of the former or existing underground storage tanks or are designated as their authorized representative, but do not own the property, please complete this form.

I, John Wolf/CCPC certify that I am the former legal owner of the underground storage tank(s) located at the facility identified below or serve as the authorized representative for the UST owner. I grant permission to the South Carolina Department of Health and Environmental Control (SCDHEC) to secure on my behalf services of a contractor to conduct assessment and corrective action activities, as required. The contractor will be designated as my contractor for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will be responsible for obtaining right-of-entry from the property owner and notifying me of all activities that are necessary prior to their initiation and will promptly provide to me a copy of each environmental report. I understand that I may choose to select my own contractor at the completion of any phase of work by notifying the Division of Underground Storage Tank Management in writing.

Name of Facility Former Fast Fare SC-576 Phone # _____

Street Address of Facility 201 Highways 28 & 32

Town, City, District, Suburb McCormick, McCormick County

Name of nearest intersecting street, road, highway, alley
5th Avenue

Is this facility within the city limits? (yes or no) unknown

Were underground storage tanks previously removed from the ground at this facility? (yes or no) no*, if yes, please provide the name and phone number of a person we can contact that can assist in the location of the former underground storage tank excavation. Name _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) no**, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the former or existing underground storage tanks, they should be moved before SCDHEC's contractor gets to the site.

NAME of UST owner (Please Print): Crown Central Petroleum Corporation

Phone Number (home) (410) 659-4862 (work) (410) 659-4862

Signature of former Underground Storage Tank Owner: _____

Witness: David D'Amato

Date: 11 Month 16 Day 98 Year

*Tanks and related equipment were sold in 10/8/98 to:
Li'l Cricket Food Stors, Inc.
PO Box 4551, Spartensburg, SC 29305

**Property was originally leased from Charles Powell
RFD#4, Abbeville SC 29620

RECEIVED
OCT 18 1999
DIVISION OF UNDERGROUND STORAGE TANK MGMT.

PROPERTY OWNER

RIGHT OF ENTRY - UST Permit #06443

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, Mahesh Patel, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility Fast Point Food Stores #34 Phone # 864-465-2303

Street Address of Facility 201 N. Mine St.

Town, City, District, Suburb McCormick SC. 29835

Name of nearest intersecting street, road, highway, alley Hwy 378

Is this facility within the city limits? (yes or no) yes

Is this facility serviced by a public water or sewer utility? (yes or no) yes, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) NO, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) yes, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the former or existing underground storage tanks, they should be moved before SCDHEC's contractor gets to the site.

NAME of property owner (Please Print): Mahesh Patel (Presdient)

Phone Number (home) _____ (work) 587-1009

Current Mailing Address 2811 Reidville Rd Suite 11 Spthg SC 29301

Signature of Property Owner: _____ (President)

Witness: Cynthia Montooth

Date: 10 Month 18 Day 99 Year

UNDERGROUND STORAGE TANK OWNER

(2)

PERMISSION FORM - FACILITY ID #06443

If you are the former owner of the former or existing underground storage tanks or are designated as their authorized representative, but do not own the property, please complete this form.

I, John Wolf/CCPC certify that I am the former legal owner of the underground storage tank(s) located at the facility identified below or serve as the authorized representative for the UST owner. I grant permission to the South Carolina Department of Health and Environmental Control (SCDHEC) to secure on my behalf services of a contractor to conduct assessment and corrective action activities, as required. The contractor will be designated as my contractor for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will be responsible for obtaining right-of-entry from the property owner and notifying me of all activities that are necessary prior to their initiation and will promptly provide to me a copy of each environmental report. I understand that I may choose to select my own contractor at the completion of any phase of work by notifying the Division of Underground Storage Tank Management in writing.

Name of Facility Former Fast Fare SC-576 Phone # _____

Street Address of Facility 201 Highways 28 & 32

Town, City, District, Suburb McCormick, McCormick County

Name of nearest intersecting street, road, highway, alley
5th Avenue

Is this facility within the city limits? (yes or no) unknown

Were underground storage tanks previously removed from the ground at this facility? (yes or no) no*, if yes, please provide the name and phone number of a person we can contact that can assist in the location of the former underground storage tank excavation. Name _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) no**, if yes, please provide their name _____ and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the former or existing underground storage tanks, they should be moved before SCDHEC's contractor gets to the site.

NAME of UST owner (Please Print): Crown Central Petroleum Corporation

Phone Number (home) (410) 659-4862 (work) (410) 659-4862

Signature of former Underground Storage Tank Owner: [signature]

Witness: David D'Antoto

Date: 11 Month 16 Day 98 Year

*Tanks and related equipment were sold in 10/8/98 to:
Li'l Cricket Food Stors, Inc.
PO Box 4551, Spartanburg, SC 29305

**Property was originally leased from Charles Powell
RFD#4, Abbeville SC 29620

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVISIOI
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 734-5435 Fax (803) 734-3604

Mr. John Wolfe III
Crown Central Petroleum
PO Box 1168
Baltimore, MD 21203

NOV 10 1998

RE: Former Crown SC-576 (Fast Point #34)
Facility ID# 06443
Site Assessment Report received November 9, 1998
McCormick County

Dear Mr. Wolfe:

The Division of Underground Storage Tank Management of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the Rapid Assessment Report (RAR) submitted by Meade Engineering.

The RAR indicates that the concentrations of Benzene, Toluene, Ethylbenzene, Naphthalenes and Methyl-Tert Butyl Ether (MTBE) exceed the Risk-Based Screening Levels (RBSL) for groundwater. The report also indicated that free phase petroleum is present at this site. In order to protect human health and the environment, Active Corrective Action (ACA) will be necessary at this site.

I have enclosed the Permission Form that must be completed for ACA to proceed under the State Lead Option. This is the option that Crown has chosen in the past for ACA sites. Please complete this form and return it to this office. The Division will secure right-of-entry access from the current owner. If you would prefer to choose owner/operator lead for this site, please notify this office within 15 days of the date of this letter.

On all correspondence regarding this site, please reference **Facility ID #06443**. If you have any questions concerning this correspondence, please contact Kristen Hein at 803-734-4844 or 1(800) 826-5435 (within SC only). Thank you for your time and cooperation in this matter.

Sincerely,

Owner/Operator Assistance Section
Assessment & Corrective Action Branch
Division of Underground Storage Tank Management

Kristen A. Hein, Hydrogeologist

Lee A. Monts, Manager

enc: Permission Form

cc: Technical File

DHEC/UST/110998

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVISION OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 734-5331 Fax (803) 734-3604

JUN 23 1998

CrownCen
Attn.: Bob Hughes
Post Office Box 1168
Baltimore, MD 21203

Re: Former Crown Station #SC-576
Site ID # 06443
Rapid Assessment Plan submitted June 9, 1998
McCormick County

Dear Mr. Hughes:

The Division of Underground Storage Tank (UST) Management has approved a cost proposal in the amount of $24,104.00. This cost proposal will be kept on file. Future invoices and/or other criteria included therein must comply with current SUPERB criteria per Section 44-2-20(2). Please reference **cost proposal number 05158. The attached Assessment Component Invoice with all necessary supporting documentation should be submitted to the SCDHEC within 60 days from the date of this letter. Please remember that all items in the miscellaneous category must be accompanied by receipts.**

Assessment activities at the site should commence immediately upon receipt of this letter. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor. **The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria.** Further, the SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work.

All laboratories utilized must be certified in the state of South Carolina for volatile organic analyses in accordance with R.61-81. **A Rapid Assessment Report is due on or before 60 days from the date of this letter.**

The Bureau grants preapproval for transportation of 3 drums of virgin petroleum contaminated ground water and 26 drums of virgin petroleum contaminated soil from the referenced site to a permitted treatment facility. The contaminated groundwater and soil must be properly stored in labeled containers as appropriate. The contaminated ground water and soil

DHEC/UST/lab/061898

must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or ground water on site. The SUPERB Account will not compensate for transportation or treatment of clean ground water.

On all future correspondence, please reference the **Site ID number 06443. On the Assessment Component Invoice please reference the site ID number and cost proposal number 05158.** As requested, Meade Engineering and Environmental, P.C. has been designated Payee. Should you have questions, please feel free to contact Leigh Ann Britton at (803) 734-4663.

Sincerely,

Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management

Leigh Ann Britton, Hydrogeologist

Lee A. Monts, Manager

Enc: Approved Assessment Component Cost Proposal
Assessment Component Invoice Form

cc: Financial File
Technical File (w/enc)
Read File (w/enc)
Jerry Meade, Meade Engineering and Environmental

DHEC/UST/lab/061898

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVIS..O
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 734-5331 Fax (803) 734-3604

APR 10 1998

CrownCen
Attn.: Bob Hughes
Post Office Box 1168
Baltimore, MD 21203

Re: Crown SC-576
Site ID # 06443
Site Visit of March 31, 1998
McCormick County

Dear Mr. Hughes:

A site visit was conducted by Department personnel on March 31, 1998. It appears that recent construction activities have caused significant damage to several monitoring wells at the site. Monitoring wells MW-5 and MW-17 could not be located. Additionally, monitoring wells MW-2, MW-19 and MW-16 have incurred significant damage and must be repaired. Monitoring wells MW-5 and MW-17 should be located and repaired. If these wells cannot be repaired, they must be abandoned in accordance with the South Carolina Well Standards and Regulations and replaced.

The site visit also revealed that there are 26 drums of soil and/or ground-water stored at the site. These drums must be properly disposed. Please submit a disposal request to the attention of Leigh Ann Britton along with a plan indicating your preference for dealing with the damaged and missing monitoring wells at the site within 15 days of receipt of this correspondence.

On all correspondence or inquiries regarding this project, please reference Site ID #06443. If you have any questions, please feel free to contact Leigh Ann Britton at (803) 734-4663 or 1-800-826-5435 (within South Carolina only).

Sincerely,

Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management

Leigh Ann Britton, Hydrogeologist

Lee A. Monts, Manager

cc: Technical File
Read File

DHEC/UST/lab/040398

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health
and Environmental Control

To: Technical File, Site ID# 06443

From: Leigh Ann Britton, Project Manager

Date: April 1, 1998

Re: Site Visit of March 31, 1998

The writer was accompanied by Bob Faller to the site. A SUPERB financial verification inspection was conducted. Several monitoring wells have been either paved over or destroyed recently. These wells are marked on the attached site map. A letter will be drafted to Crown Central Petroleum outlining conditions at the site and the next scope of work.

Information was obtained from the visitor's center in the town of McCormick that indicates that the free product plume may be traveling through preferential pathways created by mining activities that occurred during the 1800's and early 1900's. More information is needed in order to verify the location of the mine shafts beneath the site. It is critical that this information be obtained prior to the initiation of any remedial activities as the location of these shafts could present a safety hazard for the public as well as drilling and remedial activities at the site.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

SCDHEC APPROVAL for
COST AGREEMENT CHANGE
GWPD ID: # 06443
Cost Agreement: # 01955
County: McCormick
Previously Approved $ 49,545.45
Increase $ 1,431.75
NEW Approved Total $ 50,977.20
Project Manager [illegible] for Leigh Ann Britton
Section Manager [illegible] 11-18-96
F&DM [illegible]
Approved Date 11-18-96

Meade Engineering & Environmental
Attn: Jerry Meade
8132 Brookshire Blvd., Suite F
Charlotte, NC 28216

NOV 18 1996

Re: Former Crown SC-576
Site ID: #06443, CA #01955
McCormick County

Dear Mr. Meade:

Per previous telephone conversations between Bureau staff and Meade Engineering, a request to amend the referenced cost agreement was discussed. The following adjustments are offered:

- **$100.00 more** for a BTEX and Naphthalene soil analysis.
- **$120.00 more** for a PAH soil analysis.
- **$500.00 more** for an equipment mob/demob.
- **$425.00 more** for soil boring footage.
- **$100.00 more** for soil boring abandonment.
- **$2,450.00 less** for deep well MW-24. As discussed, SUPERB will pay $35/ft. for 40 feet (i.e., the initial footage). The originally approved amount (70 feet at $55/ft.) has been adjusted accordingly.
- **$840.00 more** for abandonment of MW-24's annulus. This amount allows for 40 feet at $21/ft.
- **$1400.00 more** for an additional 40 feet (at $35/ft.) to complete replacement wells MW-7, MW-9, and MW-14.
- **$210.00 more** for abandonment of MW-14's annulus. This amount allows for 10 feet at $21/ft.
- **$186.75 more** for project management/coordination (15% of $1,245.00).

The new cost proposal total is $50,977.20. The referenced cost agreement has been adjusted accordingly.

Please note that Section 44-2-130 of the SUPERB Statute states that no costs will be allowed unless prior approval form the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost(s) must be preapproved by the Department for the cost to be paid.

recycled paper

On all correspondence concerning this site, please reference Site ID #06443 and Cost Agreement #01955. If there are any questions concerning this project, please contact Leigh Ann Britton at (803) 734-4663.

Sincerely,

Assessment and Corrective Action Division
Bureau of Underground Storage Tank Management

H. Reed Corley, Hydrologist

Lee A. Monts, Manager

HRC/lam/06443-04.ADD

cc: Administrative Section

Michael Malone, Crown Central Petroleum Corporation
P.O. Box 1168
Baltimore, MD 21203

Read/Technical File

MEADE engineering & environmental, P.C.

November 16, 1996

Ms. Leann Brittan
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, NC 29201-1708

RE: Tier II Risk-Based Corrective Action Report
Former Crown Service Station SC-576
McCormick, South Carolina
SC ID# 06443

Dear Ms. Brittan,

MEADE engineering and environmental, P.C. is pleased to present our Tier II Risk-Based Corrective Action Report (RBCA) for the above referenced site. The RBCA report describes the assessment activities conducted at the site and results of a Tier II Risk-Based Corrective Action Evaluation in general accordance with South Carolina Department of Health and Environmental Control (SCDHEC).

If you have any questions regarding this report, please contact us at (704) 398-9805.

Sincerely,
MEADE engineering and environmental, P.C.

James Wellons
Staff Geologist

Jerry L. Meade, P.E.
Principal

6128 Brookshire Boulevard
Suite L
Charlotte, NC 28216

P.O. Box 37228
Charlotte, NC 28237

704.398.9805
Fax 704.398.9505

South Carolina

DHEC

Department of Health and Environmental Control

2600 Bull Street, Columbia, SC 29201

803-734-5000

Re: Farmer Crown SC-576 (Site ID #-06443)

Tele conv. w/ James Wellington

MEMO

Date: 10/02/96

Spoke w/ James and he informed me that replacement well MW-14 was drilled to 50 ft as the cuttings were just showing signs of dampness. Based on the apparent water table elev. in the auger of 26 ft. BLS, it was agreed to screen between 20-40 ft. The interval from 40-50' will be grouted and paid @ $21/ft. It was agreed to add an additional 15 ft. to replacement wells MW-7; MW-9. Wells MW-7, 9, & 14 were originally approved to 30 ft. BLS.

Reed C

DHEC 0892 (9/93)

South Carolina

DHEC

Department of Health and Environmental Control

2600 Bull Street, Columbia, SC 29201

803-734-5000

Re: Former Crown SC-576 (Site ID# 06443)
Tele conv. w/ Jerry Meade; James Wellington

MEMO

Date: 10/01/96

Spoke w/ Jerry; James concerning the installation of MW-24 (deep well). Drilled to 80 ft. and no bedrock. PID detected a hot zone around 27-32 ft. BLS. Directed James as agreed to grout from 40-80 ft (@ $17+$4.00 21.00/ft.), set screen from (35-40 ft) and complete well as a type II well ($35/ft. from 0-40 ft.) Reportedly screen will be submerged.

JMC

DHEC 0892 (9/93)

MEADE engineering & environmental, P.C.

September 18, 1996

Mr. Reed Corley
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

RE: Request for extension of the Risk-Based Corrective Action Report
Former Crown Service Station SC-576
200 North Mine Street (SC Hwy-28)
McCormick, South Carolina
SC ID# 06443
MEADE Project No. 209.60

Dear Mr. Corley:

MEADE engineering & environmental, P.C. requests a sixty day extension for the Risk-Based Corrective Action Report due September 16, 1996. We are currently waiting for a S.C.D.O.T Encroachment Permit. Drilling has been scheduled for the week of September 30, 1996.

Please contact us at 704-398-9805 if you have any questions or comments.

Sincerely,
MEADE engineering & environmental, P.C.

James E. Wellons, III
Staff Geologist

Jerry L. Meade, P.E.
Principal

RECEIVED
SEP 16 1996
Bureau of Underground
Storage Tank Management

6128 Brookshire Boulevard
Suite L
Charlotte, NC 28216

P.O. Box 37228
Charlotte, NC 28237

704.398.9805
Fax 704.398.9505

TOWN OF
McCORMICK
"We're sitting on a gold mine"

September 16, 1996

Mr. Reed Corley
SC DHEC
2600 Bull Street
Columbia, SC 29201

Dear Reed:

The McCormick Historical Commission and the Dorn Mill Historic Restoration Association, to be owner and owner, have both fully denied permission to locate a monitoring well on the Dorn Mill property. I am sorry, but please inform the engineering firm (Mead) that one can not go on this property.

Yours truly,

W Bernard Welborn

W. Bernard Welborn
Administrator

Attachments

SEP 16 1996

of Underground
Tank Management

P.O. Box 306
117 West Augusta Street
McCormick, S.C. 29835
Fax (864) 465 2476
(864) 465-2225

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Fax Message

Date: 9/12/96

Number of Pages Including Cover Sheet: 2

Please Deliver This Fax Message

TO: Mr. Bernard Welborn
Name

City of McCormick
Organization/Department

(803) 275-4840
Fax Number

(____) ____
Office Phone

FROM: H. Reed Cox
Name

UST Management
Bureau/Division/Section

(803) 734-3604
Fax Number

(803) 734-5430
Office Phone

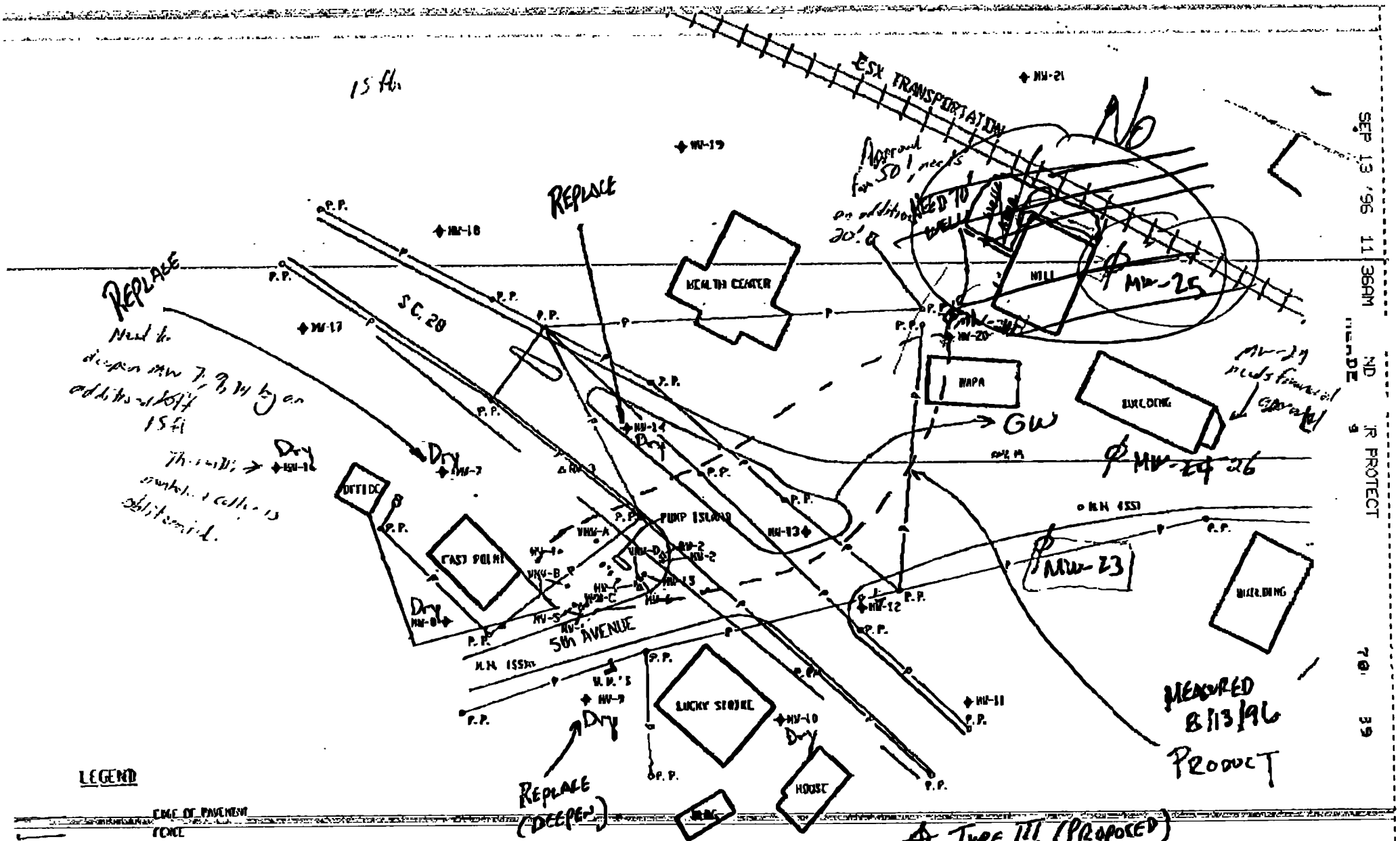
SUBJECT/COMMENTS: Mr. Welborn,

As recently discussed with the contractor (Meade), wells MW-24D & MW-26 will be installed on other properties. The only well to be installed on the Mill property would be MW-25 (see attached). Thanks for considering the location of the well.

Reed

Confidentiality Notice

This transmission is intended only for the use of the individual or entity to which it is addressed and may contain information which is privileged and confidential. If the reader of this message is not the intended recipient, you are hereby notified that any disclosure, distribution, or copying of this information is strictly prohibited. If you received this transmission in error, please notify the sender immediately by calling the above telephone number.



LEGEND

- EDGE OF PAVEMENT
- FENCE
- FIRE HYDRANT
- MONITORING WELL
- POWER LINE
- POWER POLE
- RECOVERY WELL
- UNDERGROUND TANK FILL NOZZLE
- VALVE
- WATER METER
- VAPOR MONITORING WELL

Little to No water present

⊕ Type III (Proposed)

Ø Type II (Proposed)

Also, - Propose Replacing MW-7, MW-9 & MW-14

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

September 16, 1996

Mr. J.A. Holladay
Resident Maintenance Engineer
South Carolina Department of Transportation (SCDOT) McCormick Maintenance Facility
Rt. 2, P.O. Box 83T
McCormick, SC 29835

Re: Application for Encroachment Permit received September 16, 1996
Former Crown SC-576
Site ID #06643
McCormick County

Dear Mr. Holladay:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Application for Encroachment Permit submitted by Meade Engineering & Environmental, P.C. on behalf of Crown Central Petroleum Corporation. The application requests permission to install one monitoring well (MW-14B) in median of SC 28 in McCormick, SC.

The SCDHEC considers the proposed location of the monitoring well within the right-of-way as necessary and appropriate to assess the severity and extent of ground-water contamination at the Former Crown SC-576 site. This assessment is in the public interest of protecting the ground-water supply of the state of South Carolina. The Department, therefore, respectfully requests that the SCDOT approve the application as submitted. Should you require additional information regarding this site, feel free to contact me at (803) 734-5432.

Sincerely,

Joel P. Padgett, P.G., SCDOT Liaison
Technical Section
Bureau of Underground Storage Tank Management

JPP/jpp
06443-2.OFF

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Fax Message

Date: 9/12/96

Number of Pages Including Cover Sheet: 2

Please Deliver This Fax Message

TO: Mr. Bernard Welborn
Name

Cathy McCormick
Organization/Department

(803) 275-4840
Fax Number

(____) _____
Office Phone

FROM: R. Reed Cox
Name

UST Management
Bureau/Division/Section

(803) 734-3604
Fax Number

(803) 734-5430
Office Phone

SUBJECT/COMMENTS: Mrs. Welborn,

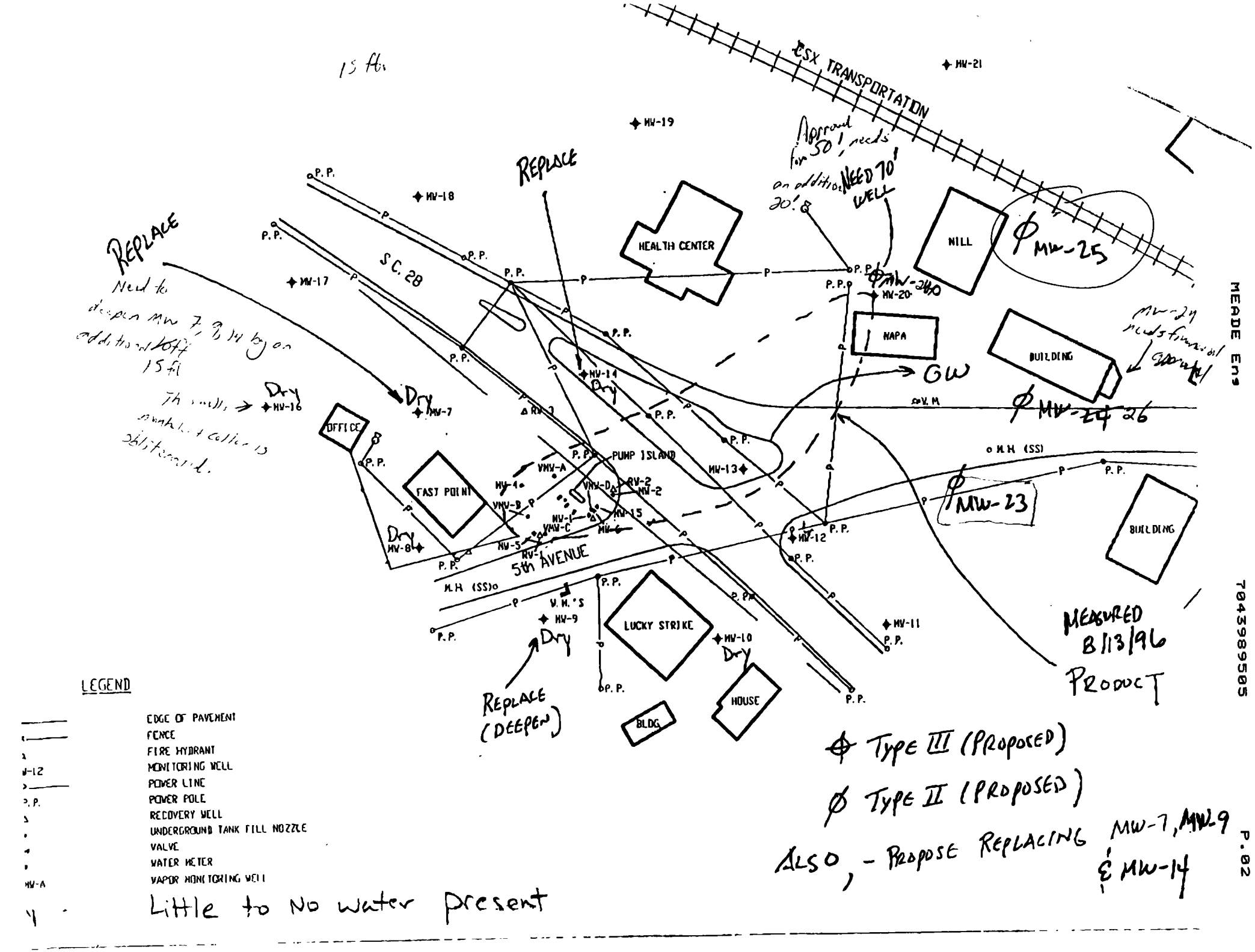
As recently discussed with the contractor (Meade), wells MW-24D & MW-26 will be installed on other properties. The only well to be installed on the Mill property would be MW-25 (see attached). Thanks for considering the location of the well.

Reed

Confidentiality Notice

This transmission is intended only for the use of the individual or entity to which it is addressed and may contain information which is privileged and confidential. If the reader of this message is not the intended recipient, you are hereby notified that any disclosure, distribution, or copying of this information is strictly prohibited. If you received this transmission in error, please notify the sender immediately by calling the above telephone number.

DHEC 0504 (7/94)



MEADE En

7043989505

P.02

RANSMISSION RESULT REPORT (SEP 13 '96 11:37AM)

JND ER PROTECT

(AUTO)

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
097	TRANSMISSION		918032754840	02	OK

ERRORS

1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

September 6, 1996

Mr. J.A. Holladay
Resident Maintenance Engineer
South Carolina Department of Transportation (SCDOT) McCormick Maintenance Facility
Rt. 2, P.O. Box 83T
McCormick, SC 29835

Re: Application for Encroachment Permit received September 6, 1996
Former Crown SC-576
Site ID #06643
McCormick County

Dear Mr. Holladay:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Application for Encroachment Permit submitted by Meade Engineering & Environmental, P.C. on behalf of Crown Central Petroleum Corporation. The application requests permission to install one monitoring well (MW-26) along the right-of-way of 5th Avenue in McCormick, SC.

The SCDHEC considers the proposed location of the monitoring well within the right-of-way as necessary and appropriate to assess the severity and extent of ground-water contamination at the Former Crown SC-576 site. This assessment is in the public interest of protecting the ground-water supply of the state of South Carolina. The Department, therefore, respectfully requests that the SCDOT approve the application as submitted. Should you require additional information regarding this site, feel free to contact me at (803) 734-5432.

Sincerely,

Joel P. Padgett, P.G., SCDOT Liaison
Technical Section
Bureau of Underground Storage Tank Management

JPP/jpp
06443.OFF

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

August 26, 1996

Mr. James Wellons, III
Meade Engg. & Environmental, P.C.
Post Office Box 37228
Charlotte NC 9805

RECEIVED
AUG 2 6 1996
Bureau of Underground
Storage Tank Management

RE: Former Crown Station SC 57, McCormick County

Dear Mr. Wellons:

This is in continuation of our recent conversations regarding your July 29, 1996 letter to Mr. John Langley of Rock Creek Waste Treatment Plant (RCWTP).

This office (SCDHEC's Industrial & Agricultural Wastewater Division) issues permits / approvals for discharging into state waters and POTWs as well as treatment plant construction permits. Hence we are responding to your request. I understand that when fully operational, the system is expected to include other treatment units as well. The discharge is approved subject to the following conditions:

1. This approval is valid through Nov. 31, 1996. The pilot unit(s) shall not be of operated after that date unless a construction permit which includes the pilot unit(s) as well as an operational approval for the treatment system have been issued.

2. The pilot unit consists of pumps, an oil/water separator and a GAC filter.

3. A maximum of 4,000 gallons of wastewater will be discharged into RCWTP sewers.

4. Any modification of this approval must be applied for in writing at least twenty (20) days before the expiration date and must include a rationale for the extension.

5. The results of the draw-down test shall be incorporated in the Engineering Report(s) leading to the issuance of a construction permit for the treatment facility.

Please feel free to call me at 803/734-4956 with any related questions you may have. I will be glad to assist you.

Sincerely,

Murali C. Koppa

Murali C. Koppa
Environmental Engineer Associate
Industrial Wastewater Section, BWPC

cc: Reed Corley, GWPD
Upper Savannah EQC District

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary

Richar
Cyndi C.
Brian K. Sm
Rodney L. Gi

Promoting Health, Protecting the Environment

AUG 16 1996

Law Engineering and Environmental
Services, Inc.
Attn: Shaun Rankin
P.O. Box 21879
Columbia, SC 29221-1879

Re: Former Crown SC-576
Site ID: #06443
Request for Review received July 9, 1996
Invoice #'s 3053054242 & -0048
McCormick County

Dear Mr. Rankin:

In response to your request for reconsideration of costs in the amount of $1,183.25, payment in the amount of **$1,181.08** has been approved. This amount reflects the following:

- **Invoice #3053054242 approved in the amount of $108.00.**
- **Invoice #3053050048 approved in the amount of $1,073.08.**
  - **$2.17 less** for the electric bill (p.11). Late fees are not payable through the SUPERB program.

A check will be processed and sent directly to Law Engineering in three to four weeks. As a payee, you must retain all pertinent technical and financial documents related to this site in accordance with Section 44-2-130 of the SUPERB Statute. Per R.61-98 Section II-B(6(a,b)) you have 30 days from date of receipt of this correspondence to request a review of any denied items. The date of receipt shall be considered effective 5 days from the date of this letter (R.61-98 Section I (10)). A response will be provided within 45 days of receipt of your request. Please refer to the enclosed form for additional information.

On all correspondence regarding this site, please reference the Site ID #06443. If you have questions concerning this correspondence, or would like to submit additional information, feel free to contact H. Reed Corley at (803) 734-5430.

Sincerely,
Technical Section
Bureau of Underground Storage Tank Management

H. Reed Corley, Hydrologist

David G. Baize, Director

HRC/dgb/06443-01.RFR

enc: Request for Review form

cc: Administrative Section

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
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Promoting Health, Protecting the Environment

7-23-96 OW

Monitoring Well Installation Approval Form

Date of Issue: JUL 22 1996
Approval No: **7259**

Approval is hereby granted to: Meade Engineering
Site ID #: 06443
County: McCormick

This approval is for one Type III monitoring well (designated MW-20D) constructed in accordance with the South Carolina Well Standards and Regulations (R.61-71). The well's intended purpose is for monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well be submitted with the report.

2. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

3. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to H. Reed Corley, Central Office, at (803-734-5430).

4. Please provide water level data and associated measurements (i.e., in-situ field measurements) with the required well logs.

5. Monitoring wells shall be installed by a well driller certified by the State of South Carolina.

This approval is pursuant to the provisions of Section 4-5540 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Approved by:

H. Reed Corley, Hydrologist
Technical Section
Bureau of Underground Storage Tank Management

hrc/06443-02.MWA

cc: Central Midlands District EQC

Michael Malone, Crown Central Petroleum Corporation
P.O. Box 1168
Baltimore, MD 21203

recycled paper

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (410) 539-7400

(410) 659-4710

April 29, 1996

Post-it® Fax Note 7671	Date 7/23/96	# of pages ▶ 15
To Jerry Meade	From H. Neal Cox	
Co./Dept. Meade Engineering	Co. Bureau of USTs	
Phone #	Phone # (803) 734-5430	
Fax # (704) 398-9805	Fax # (803) 734-3604	

South Carolina DHEC
2600 Bull Street
Columbia, South Carolina 29201-1708

Attention: Ms. Kimberly A. Wilson, P.G.
Hydrogeologist

RE: Crown SC-576
Site ID #06443
SUPERB Funding Response

Crown SC-616
Site ID # 06054
SUPERB Funding Response

Dear Ms Wilson:

Enclosed please find a completed response to your April 18, 1996 letters concerning the completion of a Rapid Assessment at the referenced facilities. As indicated in this response, Crown would like to proceed with this work and would like assistance in obtaining the names of contractors to perform this work. Please forward the contractor list to my attention.

If you have any questions concerning this correspondence, please call.

Sincerely,

Michael P. Malone

Michael P. Malone, Manager
Marketing Environmental Compliance

enclosure

RECEIVED
MAY 06 1996
Bureau of Underground
Storage Tank Management

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

APR 18 1996

Crown Central Petroleum
Attn: Michael Malone
P.O. Box 1168
Baltimore, MD 21203

RECEIVED
APR 22 1996
ENVIRONMENTAL
COMPLIANCE DEPT.

Re: Former Crown Central Station No. SC-576
Site ID #06443
Availability of SUPERB Funding
McCormick County

Dear Mr. Malone:

Currently, the release reported December 13, 1989, for the referenced site has a priority classification of 2B. Therefore, this release is eligible to receive SUPERB funds to proceed with the next scope of work. As the owner/operator for this site, you may elect to proceed with the next scope of work immediately and be compensated or have your contractor receive direct billing from the fund at the proposed allowable costs.

The Bureau of Underground Storage Tank Management is in the process of updating costs for site rehabilitation activities. These costs are to be public noticed in the April 26, 1996 State Register. Until these costs are finalized, we are instituting interim allowable costs to allow owner/operators immediate access to the fund. If the allowable costs should be decreased as a result of the public notice, we will honor the costs quoted in this correspondence. However, should the costs be increased as a result of this notice, we will only honor the costs quoted in this correspondence.

The next scope of work deemed necessary for the referenced site is completion of the Rapid Assessment (including the continuation of free product recovery activities, to be addressed under separate cover). If you desire to proceed based on the attached unit costs, complete and submit the enclosed Assessment Component Cost Proposal form and Rapid Assessment Plan forms within thirty days of the date of this letter. Every component may not be necessary to complete the above scope of work. The proposed cost for each component is included on the assessment Cost Proposal form.

Please indicate below if you desire to proceed based on these unit costs or if you decline to proceed at this time. Also, indicate if you need assistance in hiring a contractor. Your priority classification will not be affected by a decision to not proceed at this time; however, should all available SUPERB funds be committed during this interim process, funding for work on your site, after the proposed rates become finalized, may be delayed until such time as funds become available. **This letter should be completed and returned to this Bureau within 5 days of receipt.**

I wish to proceed with site rehabilitation activities at this time at the proposed allowable costs.
YES X NO___

I need assistance in obtaining a contractor to perform the attached scope of work
YES X NO___

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On all correspondence regarding this site, please reference Site ID #06443. Please feel free to call H. Reed Corley at (803) 734-5430 if you have questions or need additional information.

Sincerely,

Technical Section
Bureau of Underground Storage Tank Management

H. Reed Corley, Hydrologist

David G. Baize, Manager

HRC/dgb/06443-01.RA

enc: Component Cost Proposal Form
Rapid Assessment Guidance/Plan Form
Interim Allowable Costs

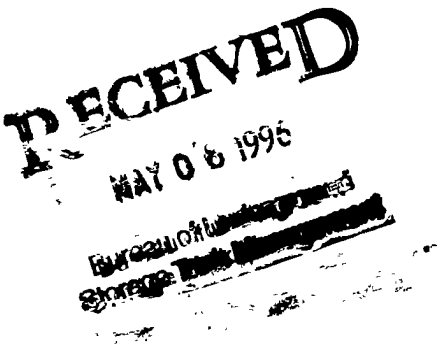
cc: Administrative Section

Gary Gunter, Law Engineering - Columbia, SC

May 8, 1996

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES, INC

Mr. Reed Corley
South Carolina Department of Health
and Environmental Control
Bureau of UST Management
Technical Section
2600 Bull Street
Columbia, South Carolina 29201



Subject: Project Update
Monitoring/Maintenance/Recovery
Former Crown SC-576
McCormick, South Carolina
GWPD No. 06443
LAW Project No. 30550-5-4051

Dear Mr. Corley:

Law Engineering and Environmental Services, Inc. (LAW) has performed monitoring, maintenance, and recovery services on the product recovery system at the subject facility. The following represents a narrative of events which have occurred since March 27, 1996.

LAW personnel were on site March 27,1996 to redevelop recovery well RW-2. Free product had been accumulating in monitoring well MW-2 within five feet of recovery well RW-2 with little or no accumulation in the recovery well for the past several months. Prior to development, it was determined that the product only pump in well RW-2 was pumping water. The well was redeveloped using surge and pump methodology. A surge block was used to develop the upper five feet of the water column and the existing product only pump was used to pump ground water to the coalescing unit (CU) which has been acting as a product holding tank. During the surge portion of the development, bacteriological growth accumulated on the surge block. While pumping the well, bacteriologic growth was observed being pumped into the CU. After the well had been redeveloped, the pump was removed, cleaned, and returned to the well. The pump was not activated due to the lack of free product in the well at that time.

The product level in RW-2 was monitored on April 4, 1996. There was no accumulation of product in the well at that time. During our conversation of April 11, 1996, we discussed the possibility of adding Clorox to the well to attempt to eliminate the possibility of bacteriological growth not affected by the redevelopment of the well on March 27,1996. It was agreed that if product had not entered the well prior to our next site visit, Clorox would be added to the well in an attempt to remove any remaining bacteria in the surrounding sand pack and formation material.

Environmental Recovery Resources, Inc. (DBA James Waste Oil Service) of Charlotte, North Carolina along with LAW personnel were on site April 17, 1996 and pumped approximately 1400 gallons of petroleum impacted water from the CU for disposal. There was no accumulation of free product in the CU. The high volume of water can in be attributed to the accumulation of rain water in the CU due to the lack of a water tight seal around the inspection hatches on the top of the unit and to the fact that the product only pump in well RW-2 had been pumping water prior to and during our site visit of March 27,1996.

Product recovery tests were performed on wells MW-2 and MW-5. Approximately 0.5 gallons of product was removed from MW-2 prior to beginning the test. The product levels and ground-water levels were measured at regular intervals during the test. After fifty minutes only 0.01 feet of product had recovered in the well. The test was stopped and the product bailed. Less than four ounces of product was removed after 50 minutes at the conclusion of the tests from a fuel column of 0.09 feet.

720 GRACERN ROAD • SUITE 132 • COLUMBIA, SC 29210
P.O. BOX 21879 • COLUMBIA, SC 29221-1879
(803) 798-1200 • FAX (803) 750-1303

Approximately 0.75 gallons of product was bailed from well MW-5 prior to beginning the recovery test. The product levels and ground-water levels were measured at regular intervals during the test. After 120 minutes the product had recovered 1.27 feet or approximately 0.1 gallons per hour. The test was stopped after 120 minutes and the product bailed. Approximately 0.21 gallons of product was removed.

At the conclusion of the tests, product thickness was measured in RW-2 at approximately 0.11 feet. The product only pumps in both RW-1 and RW-2 were activated and observed to operate for approximately 30 minutes. The pump in well RW-2 appeared to be cycling and operating correctly. Free product was observed entering the coalescing unit.

LAW personnel visited the site on April 25, 1996 to monitor the operation of the free product recovery system. On arrival, the recovery system was down, possibly due to an electrical surge affecting the air compressor. Once the reset was tripped on the compressor, the system was restarted and ran throughout the remainder of the site visit. Free product was monitored in recovery wells RW-2 and RW-5 with no accumulation observed. Free product was monitored in the monitoring wells, MW-2 and MW-5. Well MW-2 contained 0.37 feet of product and MW-5 contained 1.63 feet of product which represented a reduction of product of 2.57 feet and 1.03 feet, respectively, from the amounts measured on April 17, 1996.

Should you have questions concerning this submittal, please do not hesitate to contact us at 798-1200.

Sincerely,

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Gary L. Gunter, PG
Senior Geologist

Brian E. Chew, Sr., PG
Principal

cc: Mr. Matt Gilmore, Crown Central Petroleum

FREE PRODUCT RECOVERY TEST
MONITORING WELL MW-2
FORMER CROWN SC-576
MCCORMICK, SOUTH CAROLINA
GWPD NO. 06443
LAW PROJECT NO. 30550-5-4051

STATIC LEVEL		PRODUCT COLUMN	2.94 FT.	
PRODUCT	WATER			
14.69 FT.	17.63 FT.	PRODUCT BAILED	INITIAL 0.5 GAL.	FINAL <4 OZ.

TIME (MIN.)	DEPTH TO PRODUCT (FT.)	DEPTH TO WATER (FT.)	PRODUCT COLUMN (FT.)	CHANGE IN PRODUCT COLUMN (FT.)
0	15.38	15.46	0.08	
0.5	15.4	15.48	0.08	0
1	15.4	15.48	0.08	0
1.5	15.4	15.48	0.08	0
2	15.4	15.48	0.08	0
2.5	15.4	15.48	0.08	-0.01
3	15.41	15.48	0.07	0
3.5	15.41	15.48	0.07	0
4	15.41	15.48	0.07	0
4.5	15.41	15.48	0.07	0
5	15.41	15.48	0.07	0
6	15.41	15.48	0.07	0
7	15.41	15.49	0.08	0.01
8	15.4	15.48	0.08	0
9	15.4	15.48	0.08	0
10	15.4	15.48	0.08	0
20	15.39	15.49	0.09	0.01
50	15.4	19.18	0.09	0

FREE PRODUCT RECOVERY TEST
MONITORING WELL MW-5
FORMER CROWN SC-576
MCCORMICK, SOUTH CAROLINA
GWPD NO. 06443
LAW PROJECT NO. 30550-5-4051

STATIC LEVEL		PRODUCT COLUMN	2.66 FT.	
PRODUCT	WATER			
18.45 FT.	21.11 FT.	PRODUCT BAILED	INITIAL 0.75 GAL.	FINAL 0.25 GAL.

TIME (MIN.)	DEPTH TO PRODUCT (FT.)	DEPTH TO WATER (FT.)	PRODUCT COLUMN (FT.)	CHANGE IN PRODUCT COLUMN (FT.)
0	19.16	19.36	0.2	NR
0.5	NR	NR	NR	NR
1	19.1	19.36	0.26	0.06
1.5	19.08	19.33	0.25	0.01-
2	19.05	19.32	0.27	0.02
2.5	18.98	19.32	0.34	0.07
3	NR	NR	NR	NR
3.5	18.87	19.3	0.43	0.09
4	18.82	19.27	0.45	0.02
4.5	18.78	19.29	0.51	0.06
5	18.72	19.27	0.55	0.04
5.5	18.67	19.26	0.59	0.04
6	18.61	19.24	0.63	0.04
7	18.54	19.24	0.7	0.07
8	18.46	19.22	0.76	0.06
9	18.4	19.21	0.81	0.05
10	18.34	19.21	0.87	0.06
15	18.13	19.18	1.05	0.18
20	18.02	19.18	1.16	0.11
25	17.95	19.18	1.23	0.07
30	17.91	19.18	1.3	0.07
35	17.88	19.18	1.3	0
45	17.84	19.22	1.38	0.08
60	17.81	19.22	1.41	0.03
120	17.75	19.22	1.47	0.06

Note: NR = not recorded

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

APR 18 1996

Crown Central Petroleum
Attn: Michael Malone
P.O. Box 1168
Baltimore, MD 21203

Re: Former Crown Central Station No. SC-576
Site ID #06443
Availability of SUPERB Funding
McCormick County

Dear Mr. Malone:

Currently, the release reported December 13, 1989, for the referenced site has a priority classification of 2B. Therefore, this release is eligible to receive SUPERB funds to proceed with the next scope of work. As the owner/operator for this site, you may elect to proceed with the next scope of work immediately and be compensated or have your contractor receive direct billing from the fund at the proposed allowable costs.

The Bureau of Underground Storage Tank Management is in the process of updating costs for site rehabilitation activities. These costs are to be public noticed in the April 26, 1996 State Register. Until these costs are finalized, we are instituting interim allowable costs to allow owner/operators immediate access to the fund. If the allowable costs should be decreased as a result of the public notice, we will honor the costs quoted in this correspondence. However, should the costs be increased as a result of this notice, we will only honor the costs quoted in this correspondence.

The next scope of work deemed necessary for the referenced site is completion of the Rapid Assessment (including the continuation of free product recovery activities, to be addressed under separate cover). If you desire to proceed based on the attached unit costs, complete and submit the enclosed Assessment Component Cost Proposal form and Rapid Assessment Plan forms within thirty days of the date of this letter. Every component may not be necessary to complete the above scope of work. The proposed cost for each component is included on the assessment Cost Proposal form.

Please indicate below if you desire to proceed based on these unit costs or if you decline to proceed at this time. Also, indicate if you need assistance in hiring a contractor. Your priority classification will not be affected by a decision to not proceed at this time; however, should all available SUPERB funds be committed during this interim process, funding for work on your site, after the proposed rates become finalized, may be delayed until such time as funds become available. **This letter should be completed and returned to this Bureau within 5 days of receipt.**

I wish to proceed with site rehabilitation activities at this time at the proposed allowable costs.
YES___ NO___

I need assistance in obtaining a contractor to perform the attached scope of work
YES___ NO___

recycled paper

On all correspondence regarding this site, please reference Site ID #06443. Please feel free to call H. Reed Corley at (803) 734-5430 if you have questions or need additional information.

Sincerely,

Technical Section
Bureau of Underground Storage Tank Management

H. Reed Corley, Hydrologist

David G. Baize, Manager

HRC/dgb/06443-01.RA

enc: Component Cost Proposal Form
Rapid Assessment Guidance/Plan Form
Interim Allowable Costs

cc: Administrative Section

Gary Gunter, Law Engineering - Columbia, SC

South Carolina

DHEC

Department of Health and Environmental Control

2600 Bull Street, Columbia, SC 29201

803-734-5000

Former Crown SC-576

Site ID# 06443

Telephone conv. w/ Gary Gunter (consultant)

MEMO

Date: 4/15/96

Per my conversation with Gary, he informed me that approx. 530 gals. of product has been hand bailed to date. Also, approx. 3070 product/water mixture has been disposed of by their chosen disposal sub. Gary was unable to provide me the exact quantity of product recovered by their sub. In addition, I agreed to his proposal to recover more product from their wells via their sub and for them to perform the two recharge recovery tests.

H. Reed Cook

DHEC 0892 (9/93)

Telephone Log

Re: Lil Creek #254 (Site ID# 06443) Date: 1/10/96

rson talked to: Barry Hunter (Consultant) ☐ Incoming ☒ Outgoing

Spoke w/ Barry and informed him that ~~I had previously informed~~ I have ~~him that~~ he needs to determine how much monies he has remaining on CA # 01024. If monies are available, he can use these funds for the existing CA to conduct a tier 1 evaluation, bring the existing automated FP recovery system on-line, and prepare FP recovery reports. I informed Barry that if he desires to conduct a round of sampling, this activity should be done via SUPERB Contract. Barry will be determining the availability of remaining funds and call me back.

Signed W. Paul Coyle

'elephone Log

Re: Li'l Cricket #254 (Site ID# 06443)

Date: 12/01/95

Person talked to: Gary Gunter

☐ Incoming ☑ Outgoing

Spoke w/ Gary and informed him that if there is enough monies available against CP# 00124, we have agreed that a Tier-I evaluation, and free product recovery should commence under this active CP#. He will determine if the FP pumps on-site are total fluid or product only recovery pumps. Gary informed me that he would like to resurge the "clogged" recovery wells to aid in FP recovery activities.

Signed [signature]

Telephone Log

CP# 01024

Tele # 798-1200

Re: Tile Cricket #254 Site ID# 06443

Date: 12/12/95

Person talked to: Gary Gunter (Consultant)

☑ Incoming ☐ Outgoing

Gary called concerning the referenced site. Notified me that he has an invoice to submit against CP# 01024 for CAP preparation. He wanted to know if he should continue with preparation of the CAP which will address ground-water remediation via pump/treat, air sparging, etc. He also stated that the site has a currently inactive free product recovery system (site reportedly has FP >1'). I informed Gary that I will verify the matter of continuing with the CAP prep and follow-up with him concerning the inactive FP recovery system. Note, Gary desires to perform maintenance on the system and redevelop the "clogged" recovery wells for better FP flow into them.

Signed H. Reed Cox

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

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Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

MAR 25 1994

Crown Central Petroleum
ATTN: Matt Gilmore
P.O. Box 1168
Baltimore, Maryland 21203

RE: Cost Proposal (Received 1/14/94)
Former Crown Station SC-576 in McCormick, South Carolina
GWPD Site ID# 06443 **Cost Proposal #1024**

Dear Mr. Gilmore:

The referenced cost proposal (CP) has been placed on file by the Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control (SCDHEC). "Operation and Maintenance" activities at the site can be initiated immediately upon receipt of this letter, with the following revisions:

I. Under the "Monitoring/Recovery/Maintenance" Task:

A. Quarterly Reporting shall continue, but with a "bi-weekly" check of the facility, instead of the proposed weekly visits. The Department feels that bi-weekly visits to the facility will be adequate;

B. Under the "Staff Scientist" category (page 5 of the cost proposal), visits to the site will be conducted bi-weekly, and activities, under this category, will be reimbursable at the "Field Technician" rate. The Department feels that this work can be accomplished by a field technician. Therefore, **$18,512.00** will be deducted from that category;

C. With visits to the site becoming "bi-weekly", mileage has been reduced, with **$1560.00** being deducted;

D. Under the "Geologist" category (page 5 of the CP), the hours that have been proposed will be covering (1) the site visits and (2) the quarterly reporting requirements.

recycled paper

II. Under the "Small Volume Disposal" Task:

A. Under the "Staff Scientist" category (page 9 of the CP), product disposal activities will be reimbursable at the "Field Technician" rate. The Department feels that this work can be accomplished by a technician. Therefore, **$168.00** will be deducted;

B. **$60.00** has been deducted form the "Clerical" category (page 9 of the CP). Clerical work for "Small Volume Disposal" does not seem warranted for this task, and has been deleted.

III. Under the "Quarterly Ground-Water Sampling" Task:

A. Under the "Staff Scientist" category (page 5 of the CP), quarterly sampling and analysis activities will be reimbursable at the "Field Technician" rate. Also, only thirty two (32) hours will be allotted for these activities. Both quarterly monitoring activities and "Operation and Maintenance" activities can be accomplished, on site, on the same visits (a deduction of **$4320.00**);

B. The pick-up truck mileage will not be allowed, due to quarterly monitoring and O & M activities being performed on the same visits (a deduction of **$619.20**);

C. Per Diem will not be necessary. The Department has allowed more than sufficient time for travel, and quarterly monitoring and O & M activities should coincide on the same visits (a deduction of **$632.00**).

The cost proposal has been approved for the amount of **$44,197.00**.

The associated cost proposal will be kept on file so that direct billing can begin. Any rates and/or other criteria included therein may have been adjusted on the cost proposal to insure compliance with current SUPERB program criteria per Section 44-2-20(2). Please reference **CP#1024** on all pertinent invoices and correspondence. If additional justification is provided, the SCDHEC may allow those previously deleted items to be paid by direct contractor payment. All invoices will be processed as expeditiously as possible as long as SUPERB funds are available.

A status update form is enclosed. A copy of this form must be completed and submitted with each invoice in accordance with established program criteria. See current SCDHEC guidance documents for additional details.

As a payee, you must retain all pertinent technical and financial documents related to this site in accordance with Section 44-2-130 of the SUPERB statute. A detailed audit of work performed will be conducted at a later date and will be subject to review under the current criteria. If it is determined that inappropriate payments were made, SCDHEC will seek cost recovery.

All laboratories utilized must be certified in the state of South Carolina for volatile organic analyses in accordance with R.61-81. All hydrogeological work and submittals that include geological interpretation are required by the S.C. Boards of Registration and by Section 44-2-120 of the SUPERB Act to be supervised/sealed by a S.C. certified Professional Geologist (PG) or Professional Engineer (PE) with training and/or experience in the geological discipline.

The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified. The SCDHEC will only pay rates in accordance with established criteria. Further, the SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work. Also, the SCDHEC will seek cost recovery where appropriate. This notice to proceed with the work plan does not, in any way, acknowledge SCDHEC concurrence that all the elements contained therein will be necessary at this site.

If the above criteria are not followed, the SCDHEC reserves the right to initiate one or more of the following actions as appropriate; 1) Refer the contractor to the Boards of Registration for Professional Geologists and Engineers, 2) seek cost recovery in accordance with Section 44-2-50 of the SUPERB Act, and/or 3) prohibit future participation in the SUPERB program by the contractor in accordance with Section 44-2-120 of the SUPERB Act.

On all future correspondence, please reference the **GWPD Site ID Number.** Questions concerning the above should be addressed to the attention of **Aubrey Stewart** (803) 734-5331.

Sincerely,

UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

Aubrey Stewart, Hydrogeologist

David G. Baize, Manager

sas/06443EAP2.LET-2/28/94P

Enc: Status Update Form

cc: F&DM Section, GWPD
Bryan Shane, LAW Engineering and Environmental Services, P.O. Box 21879, Columbia, South Carolina 29221-1879
Upper Savannah District EQC
Aubrey Stewart, GWPD

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman
Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary

Promoting Health, Protecting the Environment

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr.,
John B. Pate, MD

MAR 25 1994

Crown Central Petroleum
ATTN: Matt Gilmore
P.O. Box 1168
Baltimore, Maryland 21203

RE: Cost Proposal (Received 1/14/94)
Former Crown Station SC-576 in McCormick, South Carolina
GWPD Site ID# 06443 **Cost Proposal #1024**

Dear Mr. Gilmore:

The referenced cost proposal (CP) has been placed on file by the Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control (SCDHEC). "Operation and Maintenance" activities at the site can be initiated immediately upon receipt of this letter, with the following revisions:

I. Under the "Monitoring/Recovery/Maintenance" Task:

A. Quarterly Reporting shall continue, but with a "bi-weekly" check of the facility, instead of the proposed weekly visits. The Department feels that bi-weekly visits to the facility will be adequate;

B. Under the "Staff Scientist" category (page 5 of the cost proposal), visits to the site will be conducted bi-weekly, and activities, under this category, will be reimbursable at the "Field Technician" rate. The Department feels that this work can be accomplished by a field technician. Therefore, **$18,512.00** will be deducted from that category;

C. With visits to the site becoming "bi-weekly", mileage has been reduced, with **$1560.00** being deducted;

D. Under the "Geologist" category (page 5 of the CP), the hours that have been proposed will be covering (1) the site visits and (2) the quarterly reporting requirements.

recycled paper

II. Under the "Small Volume Disposal" Task:

A. Under the "Staff Scientist" category (page 5 of the CP), product disposal activities will be reimbursable at the "Field Technician" rate. The Department feels that this work can be accomplished by a technician. Therefore, **$1** will be deducted;

B. **$60.00** has been deducted form the "Clerical" category (page 9 of the CP). Clerical work for "Small Volume Disposal" does not seem warranted for this task, and has been deleted.

III. Under the "Quarterly Ground-Water Sampling" Task:

A. Under the "Staff Scientist" category (page 5 of the CP), quarterly sampling and analysis activities will be reimbursable at the "Field Technician" rate. Also, only thirty two (32) hours will be allotted for these activities. Both quarterly monitoring activities and "Operation and Maintenance" activities can be accomplished, on site, on the same visits (a deduction of **$4320.00**);

B. The pick-up truck mileage will not be allowed, due to quarterly monitoring and O & M activities being performed on the same visits (a deduction of **$619.20**);

C. Per Diem will not be necessary. The Department has allowed more than sufficient time for travel, and quarterly monitoring and O & M activities should coincide on the same visits (a deduction of **$632.00**).

The cost proposal has been approved for the amount of **$44,197.00.**

The associated cost proposal will be kept on file so that direct billing can begin. Any rates and/or other criteria included therein may have been adjusted on the cost proposal to insure compliance with current SUPERB program criteria per Section 44-2-20(2). Please reference **CP#1024** on all pertinent invoices and correspondence. If additional justification is provided, the SCDHEC may allow those previously deleted items to be paid by direct contractor payment. All invoices will be processed as expeditiously as possible as long as SUPERB funds are available.

A status update form is enclosed. A copy of this form must be completed and submitted with each invoice in accordance with established program criteria. See current SCDHEC guidance documents for additional details.

As a payee, you must retain all pertinent technical and financial documents related to this site in accordance with Section 44-2-130 of the SUPERB statute. A detailed audit of work performed will be conducted at a later date and will be subject to review under the current criteria. If it is determined that inappropriate payments were made, SCDHEC will seek cost recovery.

All laboratories utilized must be certified in the state of South Carolina for volatile organic analyses in accordance with R.61-81. All hydrogeological work and submittals that include geological interpretation are required by the S.C. Boards of Registration and by Section 44-2-120 of the SUPERB Act to be supervised/sealed by a S.C. certified Professional Geologist (PG) or Professional Engineer (PE) with training and/or experience in the geological discipline.

The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified. The SCDHEC will only pay rates in accordance with established criteria. Further, the SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work. Also, the SCDHEC will seek cost recovery where appropriate. This notice to proceed with the work plan does not, in any way, acknowledge SCDHEC concurrence that all the elements contained therein will be necessary at this site.

If the above criteria are not followed, the SCDHEC reserves the right to initiate one or more of the following actions as appropriate; 1) Refer the contractor to the Boards of Registration for Professional Geologists and Engineers, 2) seek cost recovery in accordance with Section 44-2-50 of the SUPERB Act, and/or 3) prohibit future participation in the SUPERB program by the contractor in accordance with Section 44-2-120 of the SUPERB Act.

On all future correspondence, please reference the **GWPD Site ID Number.** Questions concerning the above should be addressed to the attention of **Aubrey Stewart** (803) 734-5331.

Sincerely,

UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

Aubrey Stewart, Hydrogeologist

David G. Baize, Manager

sas/06443EAP2.LET-2/28/94P

Enc: Status Update Form

cc: F&DM Section, GWPD
Bryan Shane, LAW Engineering and Environmental Services, P.O. Box 21879, Columbia, South Carolina 29221-1879
Upper Savannah District EQC
Aubrey Stewart, GWPD

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman
Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

February 10, 1994

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 396267
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 396267 for the referenced facility.

The invoice has been approved for the amount of $4,347.09. A 10% retainer of $434.71 will be held until the work completed has been reviewed. A check for $3,912.38 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $4,351.09. The amount of **$4.00** has not been approved. This amount is for senior review time that was billed at a rate higher than the rate in the approved cost proposal.

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP13
cc: Mr. Matthew Gilmore, Crown Central Petroleum,
PO Box 1168, Baltimore, MD 21203

Aubrey Stewart, UST Corrective Action Section

recycled paper

RANSMISSION RESULT REPORT •••••••••• ••(APR 14 '94 07:08AM)••••••••••••••••

GROUND WATER PROTECT

(AUTO) ••••••••••••••••••••

THE FOLLOWING FILE(S) ERASED

FILE	FILE TYPE	OPTION	TEL NO.	PAGE	RESULT
050	TRANSMISSION		97501303	05	OK

ERRORS

1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

South Carolina
DHEC
Department of Health and Environmental Control

Fax Message

Date: 4-13-94

Number of Pages Including Cover Sheet: 5

Please Deliver This Fax Message

TO: Bryan Shane
Name

LAW
Organization/Department

(803) 750-1303
Fax Number

(____) _____
Office Phone

FROM: Aubrey Stewart
Name

GWPD
Bureau/Division/Section

(____) _____
Fax Number

(803) 734-5331
Office Phone

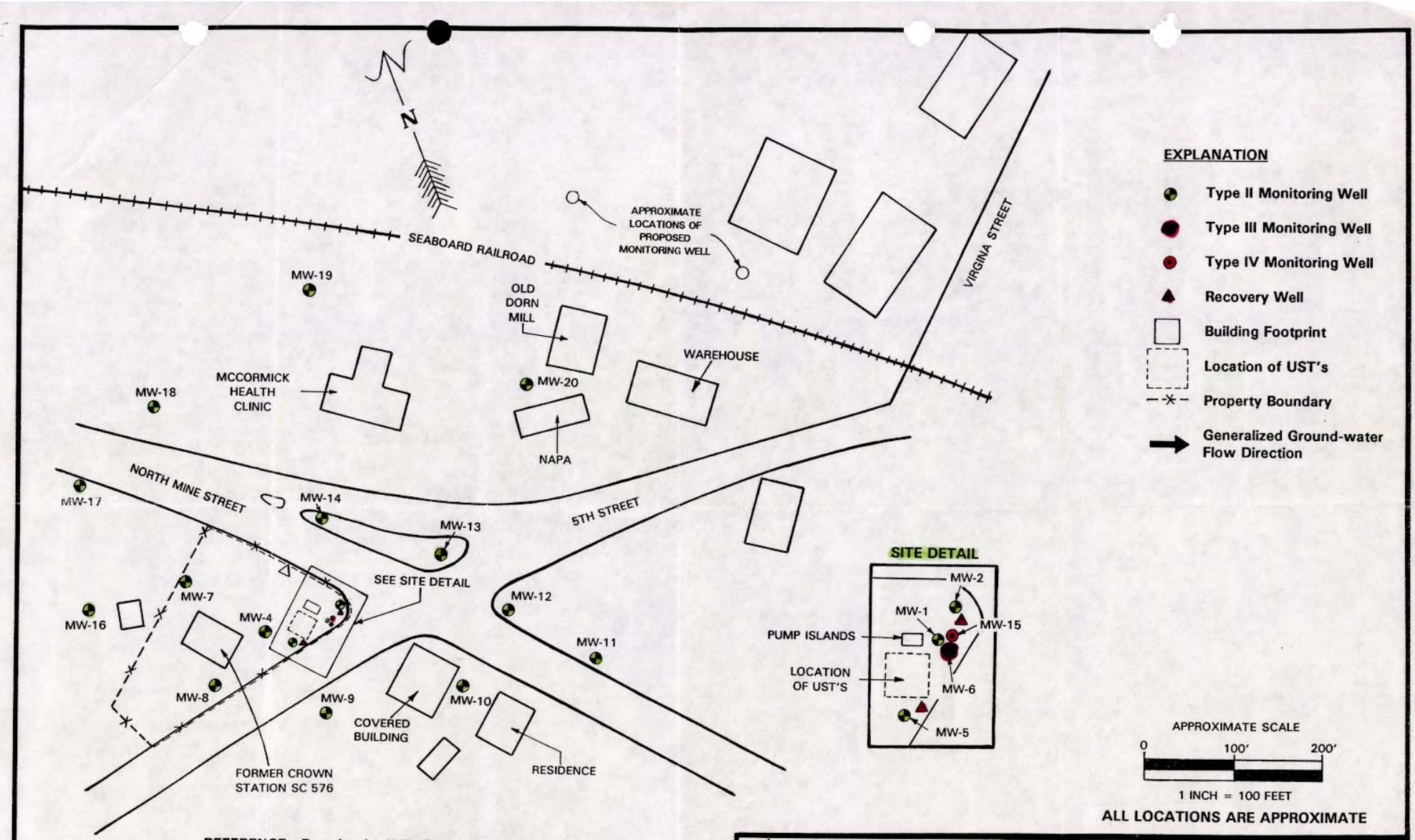
SUBJECT/COMMENTS:

Here's the approval letter.

Good Luck!

Aubrey

DHEC 0504 (6/93)



REFERENCE: Drawing by K.T. Gould, Inc. entitled "Crown Station S.C. 576" on November 21, 1992 and undated City Tax Map Aerial Photograph of McCormick, South Carolina and Law Engineering Personnel field notes.

LAW ENGINEERING
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum
Baltimore, Maryland
Law Engineering Project No. 499-2-4051-02

Site Plan
Former Crown Station SC 576
McCormick, South Carolina

DWN. BY	DJD	7/93	SCALE: As shown
CKD. BY	TEV	7/93	FIGURE 1
APPR'D.		7/93	

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

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Sandra J. Molander, Secretary

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

Date: **January 20, 1994**

Lil Cricket Food Stores, Inc.
Attn: Gordon Zuber
P.O. Box 4551
Spartanburg, South Carolina 29305-4551

Re: GWPD Site # **06443**
Cost Proposal # **0175**
Underground Storage Tank Release
Priority Ranking

Dear Underground Storage Tank Owner:

As most of you are aware, cleanup costs submitted to date have exceeded the SUPERB Account's ability to pay. In-house bills awaiting payment or under review exceed $8 million dollars.

The short term goals will be to eliminate old debt, to insure future revenues exceed expenditures, and to maintain the financial capability to address emergency situations. Actions taken to date towards this end include suspending access to direct billing on most sites. The SUPERB account has borrowed $5 million from other Departmental programs, and the program is currently processing some of the existing debt. Repayment to those programs must begin in January 1994 at $500,000 per month by the environmental impact fee. While this will quickly pay some of the existing debt, the available income to address the remaining debts or environmental problems will be significantly reduced for months to come. Therefore, the number of sites that may access direct billing must be further reduced.

The UST cleanup program will reserve most of the remaining monthly income to pay existing claims. We will attempt to maintain some cleanup activity utilizing direct billing at a few of the priority sites focusing on free product recovery and to address emergency situations.

Please note that site rehabilitation activities have been previously approved via the direct billing method (per the referenced cost proposal number) for this site. Continued obligation of financial resources under direct billing at this site can continue for operation and maintenance **only**. The current cost proposal will be closed out. A system monitoring report and the associated invoices must be submitted to the Department within 30 days of receipt of this letter.

recycled paper

Please submit a new cost proposal outlining costs **only** associated with operation and maintenance of the remediation system for one year. Per telephone conversation with your environmental consultant, it was agreed that the new cost proposal will be submitted by **February 4, 1994**. Costs to operate and maintain the system during the interval that the new cost proposal is being developed and approved by the SCDHEC should be included in the new cost proposal and subsequently billed.

If you have any further questions, please contact the SCDHEC project manager at 734-5331.

Sincerely,

David G. Baize, Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

sas\06443opencp.cap

cc: Brian Chew, LAW Environmental, P.O. Box 240674, Charlotte, North Carolina 28224-0674
Appalachia II District EQC
F & DM Section, GWPD
Aubrey Stewart, GWPD

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

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Sandra J. Molander, Secretary

Promoting Health, Protecting the Environment

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

F l

October 10, 1993

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 3956291622
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 3956291622 for the referenced facility.

The invoice has been approved for the amount of $5,556.52. A 10% retainer of $555.65 will be held until the completion of this phase of work. A check for $5,000.87 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $5,744.82. The amount of **$188.30** has not been approved. The following adjustment was made:

$188.30 Deduction for mileage that exceeds the amount in the approved cost proposal for AP Implementation.

At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of the above item and any previously denied items, provided appropriate documentation and written justification has been received.

This invoice reflects charges for personnel under AP Implementation that exceed the amount in the originally submitted approved Cost Proposal. These charges have been processed and will be deducted from the total personnel cost for AP Implementation. Any personnel cost for the above task that exceed the approved cost proposal will be denied.

recycled paper

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP9

cc: Mr. Matthew Gilmore, Crown Central Petroleum, PO Box 1168, Baltimore, MD 21203

Aubrey Stewart, UST Corrective Action Section

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown Jr

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

Promoting Health, Protecting the Environment

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

SEP 10 1993

Mr. D.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 39-5478-1622
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 39-5478-1622 for the referenced facility.

The invoice has been approved for amount of $14,544.69. A 10% retainer of $1,454.47 will be held until the completion of this phase of work. A check for $13,090.22 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $14,666.12. The amount of **$121.43** has not been approved. The following adjustments were made:

$88.15 Deduction for mileage that exceeds the amount in the approved cost proposal for AP Implementation.

$33.28 Deduction for supplies that were not in the approved cost proposal.

At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of the above item and any previously denied items, provided appropriate documentation and written justification has been received.

This invoice reflects charges for personnel under AP Implementation that exceed the amount in the originally submitted approved Cost Proposal. These charges have been processed and will be deducted from the total personnel cost for AP Implementation. Any personnel cost for the above task that exceed the approved cost proposal will be denied.

Recycled paper

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP87

cc: Mr. Matthew Gilmore, Crown Central Petroleum, PO Box 1168, Baltimore, MD 21203

Aubrey Stewart, UST Corrective Action Section

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

Promoting Health, Protecting the Environment

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

joel

AUG 1 0 1993

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 395327
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 395327 for the referenced facility.

The invoice has been approved for amount of $16,962.42. A 10% retainer of $1,696.24 will be held until the completion of this phase of work. A check for $15,266.18 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $17,269.64. The amount of **$307.22** has not been approved. The following adjustments were made:

$50.00 Deduction for a water level indicator for which the quantity billed exceeds the quantity in the approved cost proposal.

$1.00 Deduction for a conductivity meter that exceeds the rate in the originally submitted and approved cost proposal.

$6.00 Deduction for a steam cleaner that exceeds the rate in the originally submitted and approved cost proposal.

$25.00 Deduction for pump rental that was not in the originally submitted and approved cost proposal.

$25.00 Deduction for a pump controller that was not in the originally submitted and approved cost proposal.

$22.00 Deduction for well sampling equipment that exceeds the SCDHEC established rate of $13.00.

recycled paper

$12.62 Deduction for vinyl and nitrile gloves that were not in the originally submitted and approved cost proposal. It should be noted that gloves are included in the $13.00 per well for well sampling equipment.

$165.60 Deduction for mileage under AP Implementation that exceeds the amount in the originally submitted and approved cost proposal.

At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of the above item and any previously denied items, provided appropriate documentation and written justification has been received.

This invoice reflects charges for personnel under AP Implementation that exceed the amount in the originally submitted approved Cost Proposal. These charges have been processed and will be deducted from the total personnel cost for AP Implementation. Any personnel cost for the above task that exceed the approved cost proposal will be denied.

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP7

cc: Mr. Matthew Gilmore, Crown Central Petroleum, PO Box 1168, Baltimore, MD 21203

Joel Padgett, UST Corrective Action Section

S.C. DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION FORM 638 (REV. 10/86)

Jack

APPLICAT FOR ENCROACHMENT PERM

3/1/93

No. 233-297

A-57673

(ENCROACHMENT PERMIT OTHER THAN A PUBLIC UTILITY)

APPLICANT: Law Engineering, Inc.
AND
ADDRESS: 720 Gracern Road, Suite 132
Columbia, SC 29210

TELEPHONE NUMBER: (803) 798-1200

COUNTY: McCormick

ROAD/ROUTE: Intersection of N. Mine (Hwy 28) and Fifth Street, in City of McCormick

ROAD NAME:

1. The undersigned applicant hereby applies to the South Carolina Department of Highways and Public Transportation (SCDHPT) for a permit for encroachment on State Highway Right of Way as shown and described below:

2. Type of Encroachment: Construction of ground water monitoring wells (MW-8, MW-10, MW-11, MW-12, and MW-15). See attached Figures 1 and 2.

3. Description of location with reference to highway: Monitoring wells will be installed in right-of-way approximately 3 feet off roadway along N. Mine Street and 5th Street in McCormick, South Carolina. See Figure 1 for proposed locations.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

4. The undersigned applicant hereby requests the SCDHPT to permit encroachment on the Department right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the Department's "A Policy for Accommodating Utilities on Highways Rights of Way" and "Standard Specifications for Highway Construction" (made a part hereof by reference) on file in the Utility Office of the Department, and all general provisions on the reverse hereof and special provisions below or attached hereto during the installation, operation and maintenance of said encroachment within the Department Right of Way. The applicant hereby further agrees, and binds his heirs, successors, assigns, to assume any and all liability this Department might otherwise have in connection with accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing, of the physical appurtenances contemplated herein and agrees to indemnify this Department for any liability incurred or injury or damage sustained by reason of the past, present, or future existence of said appurtenances.

APPLICANT NAME: Bryan Shane (PLEASE PRINT OR TYPE) DATE REQUESTED: 1/20/93

APPLICANT SIGNATURE: BT Shane TITLE: Project Hydrogeologist

In compliance with your request and subject to all the provisions, terms, conditions and restrictions stated in the application, general provisions on the reverse hereof, and special provisions below or attached hereto, the Department approves the request. This permit shall become null and void unless the work contemplated herein shall have been completed prior to May 1, 1993.

SPECIAL PROVISIONS: See attached.

I D6443

OK
J. A. Holladay, R.M.E.

1/22/93 DATE RECEIVED BY RES. MAINT. ENGR.

1-25-93 DATE RECEIVED BY DIST. ENGR. ADMIN.

1/22/93 DATE FORWARDED

1-25-93 DATE FORWARDED

Robert Tuohy SCDHPT APPROVAL 2-27-93 DATE

☐ RESIDENT MAINTENANCE ENGINEER ☐ STATE HIGHWAY ENGINEER

☒ DISTRICT ENGINEERING ADMINISTRATOR ☐ DISTRICT MAINT./CONSTRUCTION ENGINEER

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

December 10, 1993

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 39-5760-1622
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 39-5760-1622 for the referenced facility.

The invoice has been approved for the amount of $2,206.06. A 10% retainer of $220.61 will be held until the work completed has been reviewed. A check for $1,985.45 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $2,368.71. The amount of **$162.65** has not been approved. The following adjustment was made:

$62.65 Deduction for mileage that exceeds the amount in the approved cost proposal for AP Implementation.

$100.00 Deduction for analytical test 602 liquid that exceeds the quantity in the approved cost proposal.

At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of the above item and any previously denied items, provided appropriate documentation and written justification has been received.

This invoice reflects charges for a technician and a scientist/geologist under the personnel category for AP Implementation that exceed the amount in the originally submitted approved Cost Proposal. These charges have been processed and will be deducted from the total personnel cost for AP Implementation. Any personnel cost for the above task that exceed the approved cost proposal will be denied.

recycled paper

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP10

cc: Mr. Matthew Gilmore, Crown Central Petroleum, PO Box 1168, Baltimore, MD 21203

Aubrey Stewart, UST Corrective Action Section

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

July 13, 1993

RECEIVED
JUL 27 1993
Groundwater Protection Division

Mr. Joel Padgett
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Addendum to Cost Proposal for Implementation of Expanded Assessment Plan
Crown Station S.C.-576
McCormick, South Carolina
GWPD Site ID # 06443
Law Engineering Job No. 499-2-4051-02

* Approved for CP addendum w/ indicated adjustment.
7/28/93

Dear Mr. Padgett:

On behalf of Crown Central Petroleum Company, Law Engineering is pleased to submit this Addendum to our previous cost proposal for additional assessment to be conducted for the subject site. The apparent need for additional work became evident following the completion of previously approved assessment activities. In order to determine the horizontal extent of dissolved phase gasoline constituents in the local shallow aquifer, Law Engineering proposes to install two new type II ground-water monitoring wells and obtain soil and ground-water samples from the new wells for chemical analysis.

The attached Cost Proposal Summary Sheet outlines our anticipated costs for completion of the additional tasks. If this proposal is acceptable to you please amend your CP 175 for the subject site to include these fees and notify us of your acceptance in writing.

Law Engineering appreciates the opportunity to continue to offer our professional environmental related services on this project. If you have any questions concerning this proposal, please contact us at 798-1200.

Sincerely,

LAW ENGINEERING, INC.

Bryan T. Shane
Bryan T. Shane
Project Geologist

Brian E Chew Sr/sek
Brian E. Chew, Sr., P.G.
Principal Hydrogeologist
Registered SC #184

Attachments: Cost Proposal Summary Sheet

LAW ENGINEERING, INC.
720 GRACERN RD SUITE 132
P O BOX 21879
COLUMBIA SC 29221

803-798-1200
FAX 803-750-1303
ONE OF THE LAW COMPANIES

COST PROPOSAL SUMMARY SHEET
CROWN CENTRAL PETROLEUM CORPORATION
201 NORTH MINE STREET
McCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NO. 499-2-4051-03
GWPD SITE ID: O6443

	QUANTITIES		RATE($)	COSTS($)
TASK 4, AP Implementation				
1. Drilling				
Well Installation (2-inch PVC)	60 feet	@	$37.00	$2,220.00
Split Spoon Samples	16 samples	@	$20.00	$320.00
Steam Cleaner Rental	2 days	@	$81.00	$162.00
Labor (two man crew)	2 days	@	$230.00	$460.00
Per Diem (per person)	4 days	@	$79.00	$316.00
Drill Rig Mobilization/Demobilization			Lumpsum	$200.00
Drill Rig Mileage	200 miles	@	$1.00	$200.00
2. Drilling Observation and Boring Lay-Out				
Staff Scientist	16 hours	@	$56.00	$896.00
Project Manager	2 hours	@	$80.00	$160.00
OVA Rental (flame)	2 days	@	$120.00	$240.00
Interface Probe Rental	2 days	@	$45.00	$90.00
Pickup Mileage	200 miles	@	$0.43	$86.00
Per Diem	2 days	@	$79.00	$158.00
Travel Time	6 hours	@	$56.00	$336.00
3. Monitoring Well Development and Sampling				
Staff Scientist	8 hours	@	$56.00	$448.00
Interface Probe Rental	2 days	@	$45.00	$90.00
Well Sampling Equipment	2 wells	@	$13.00	$26.00
Pickup Mileage	200 miles	@	$0.43	$86.00
Per Diem	1 day	@	$79.00	$79.00
4. Off-Site Permission				
Staff Scientist	16 hours	@	$56.00	$896.00
Pickup Mileage	200 miles	@	$0.43	$86.00
~~Senior Review~~	~~2 hours~~	~~@~~	~~$91.00~~	~~$182.00~~
5. Chemical Analysis				
EPA Method 602	3 liquids	@	$100.00	$300.00
Method 5030	2 soils	@	$100.00	$200.00
Shipping	2 shippers	@	$40.00	$80.00
		GRAND TOTAL		~~$8,317.00~~

8135.00

Joel

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

May 5, 1993

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443 CP #0175
Invoice Number 3950691622
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice number 3950691622 for the referenced facility.

The invoice has been approved for amount of $7,654.49. A 10% retainer of $765.45 will be held until the completion of this phase of work. A check for $6,889.04 will be processed and sent to Law Engineering in approximately three weeks.

The total amount of the invoice was $7,660.74. The amount of $6.25 has not been approved. This amount represents a 25% markup on electricity that this office does not consider appropriate for electrical service. At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of the above item and any previously denied items, provided appropriate documentation and written justification has been received.

This invoice reflects charges for Clerical and a Draftsperson under AP Implementation that was not listed on the originally submitted approved Cost Proposal. In addition this invoice further reflects charges for a Scientist/Geologist under AP Implementation that exceed the originally submitted and approved cost proposal. These charges have been processed and will be deducted from the total personnel cost for AP Implementation. Upon receipt of the final invoice any personnel cost that exceed the approved Cost Proposal for AP Implementation will be disapproved.

recycled paper

May 5, 1993
Mr. Shane

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP6

cc: Mr. Herschel L. Brown, Jr., President, Brownies Sales, Inc., PO Box 236, Sharon, SC 29742

Joel Padgett, UST Corrective Action Section

JDel

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III.
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

April 27, 1993

Mr. B.T. Shane
Law Engineering
PO Box 21879
Columbia, SC 29224

Re: Crown Central 576
GWPD Site ID# 06443
Invoice Number 3949251622
Cost Proposal #0175
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed invoice number 3949251622 for the referenced facility.

The invoice has been approved for $30,692.95. A 10% retainer in the amount of $3,069.29 will be held until completion of this phase of work. A check for $27,623.66 will be processed and sent to Law Engineering in approximately three weeks.

The total of the original invoice was $30,949.06. We have adjusted your invoice due to a multiplication error on page 10. The corrected invoice total is $30,925.21. The amount of $232.26 has been denied. This amount represents the following:

- $85.26 for car rental. This charge was submitted without the rental receipt. Additionally, this office will only pay for mileage or car rental, not both.

- $147.00 for per diem charges. This charge was above our maximum allowable charge of $79.00 per day.

Upon receipt of supporting documentation for the above items, we will consider approval and payment. If you have any questions, feel free to call Mitzi Stewart at (803) 734-5324.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

MKS/06443

cc: Mr. Matthew Gilmore, Crown Central Petroleum, PO Box 1168, Baltimore, MD 21203

Joel Padgett, GWPD

recycled paper

CP addendum approved 5/13/93
J. Padgett

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES

April 27, 1993

Mr. Joel Padgett
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

RECEIVED
MAY 05 1993
Groundwater Protection
Division

Subject: Addendum to Cost Proposal for Implementation of Expanded Assessment Plan
Crown Station S.C.-576
McCormick, South Carolina
GWPD Site ID # 06443
Law Engineering Job No. 499-2-4051-02

Dear Mr. Padgett:

On behalf of Crown Central Petroleum Company, Law Engineering is pleased to submit this Addendum to our previous cost proposals for additional assessment to be conducted for the subject site. The need for additional work became evident following the completion of previously approved assessment activities. In order to determine the horizontal extent of dissolved phase gasoline constituents in the local shallow aquifer, Law Engineering proposes to install six new type II ground-water monitoring wells and obtain samples from the new and existing monitoring wells for chemical analysis.

In addition to the above proposed amendments, Law requests additional fees be incorporated into the budget for services as proposed in our original cost proposals. The need for these fees is due to the expenditure of allocated funds in the completion of tasks not covered in our original cost proposal. These cost overruns include:

- Additional footage required during the installation of deep well MW-15.
- Additional chemical analyses of water samples collected during the installation of MW-15.
- Additional field personnel time for the installation of well MW-15.
- Additional field personnel and contracted labor costs incurred due to difficult excavation (bedrock encountered) of the trenches for the product recovery system.
- Installation of a high level shut-off controls for the product recovery system.

LAW ENGINEERING, INC.
720 GRACERN RD., SUITE 132
P O BOX 21879
COLUMBIA, SC 29221

803-798-1200
FAX 803-750-1303
ONE OF THE LAW COMPANIES

The attached Cost Proposal Summary Sheet includes the costs for the overruns and outlines our anticipated costs in completion of the additional tasks. If this proposal is acceptable to you please amend your CP #175 for the subject site to include these fees and notify us of your acceptance in writing.

Law Engineering appreciates the opportunity to continue to offer our professional environmental related services on this project. If you have any questions concerning this proposal, please contact us at 798-1200.

Sincerely,

LAW ENGINEERING, INC.

BTShane

Bryan T. Shane
Project Geologist

Brian E. Chew, Sr. /TDB

Brian E. Chew, Sr., P.G.
Principal Hydrogeologist
Registered SC #184

BTS/BEC:tdb

Attachments: Cost Proposal Summary Sheet

RECEIVED
MAY 05 1993
Groundwater Protection Division

COST PROPOSAL SUMMARY SHEET
CROWN STATION SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING JOB NO. 499-2-4051-02
GWPD SITE ID: 06443

	QUANTITIES		RATE($)	COSTS($)
Program Task 4, AP Implementation				
1. Drilling				
Well Installation (2-inch PVC)	180 feet	@	$37.00	$6,660.00
Split Spoon Samples	46 samples	@	$20.00	$920.00
Steam Cleaner Rental	6 days	@	$81.00	$486.00
Labor (two man crew)	6 days	@	$230.00	$1,380.00
Per Diem (per person)	12 days	@	$79.00	$948.00
Drill Rig Mobilization/Demobilization			Lump sum	$200.00
Drill Rig Mileage	200 miles	@	$1.00	$200.00
			Sub-Total	**$10,794.00**
2. Drilling Observation and Boring Lay-Out				
Staff Scientist	60 hours	@	$56.00	$3,360.00
Project Manager	10 hours	@	$80.00	$800.00
OVA Rental (flame)	6 days	@	$120.00	$720.00
Interface Probe Rental	6 days	@	$45.00	$270.00
Pickup Mileage	600 miles	@	$0.43	$258.00
Per Diem	6 days	@	$79.00	$474.00
Travel Time	8 hours	@	$56.00	$448.00
			Sub-Total	**$6,330.00**
3. Monitoring Well Sampling				
Staff Scientist	20 hours	@	$56.00	$1,120.00
ph Meter Rental	1 day	@	$30.00	$30.00
Conductivity Meter Rental	1 day	@	$30.00	$30.00
Interface Probe Rental	1 day	@	$45.00	$45.00
Well Sampling Equipment	16 wells	@	$13.00	$208.00
Pickup Mileage	200 miles	@	$0.43	$86.00
Per Diem	2 days	@	$79.00	$158.00
			Sub-Total	**$1,677.00**
4. Off-Site Landowner Permission				
Staff Scientist	15 hours	@	$56.00	$840.00
Geologist	8 hours	@	$64.00	$512.00
Project Manager	4 hours	@	$80.00	$320.00
Senior Review	1 hour	@	$91.00	$91.00
Clerical	6 hours	@	$30.00	$180.00
Draftsperson	4 hours	@	$35.00	$140.00
			Sub-Total	**$2,083.00**

COST PROPOSAL SUMMARY SHEET
CROWN STATION SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING JOB NO. 499-2-4051-02
GWPD SITE ID: 06443

	QUANTITIES		RATE($)	COSTS($)
5. Chemical Analysis				
EPA Method 602	18 liquids	@	$100.00	$1,800.00
Method 5030	6 soils	@	$100.00	$600.00
EPA Method 8020	6 soils	@	$100.00	$600.00
Shipping	2 shippers	@	$40.00	$80.00
			Sub-Total	**$3,080.00**
6. In-Situ Permeability Tests and Data Reduction				
Staff Scientist	24 hours	@	$56.00	$1,344.00
Geologist	14 hours	@	$64.00	$896.00
Project Manager	4 hours	@	$80.00	$320.00
Senior Review	2 hours	@	$91.00	$182.00
			Sub-Total	**$2,742.00**
7. Project Management				
Staff Scientist	20 hours	@	$56.00	$1,120.00
Geologist	10 hours	@	$64.00	$640.00
Project Manager	15 hours	@	$80.00	$1,200.00
Senior Review	2 hours	@	$91.00	$182.00
Clerical	6 hours	@	$30.00	$180.00
Draftsperson	4 hours	@	$35.00	$140.00
			Sub-Total	**$3,462.00**
			GRAND TOTAL	**$30,168.00**

Ejector Systems Incorporated
910 National Avenue, Addison, IL 60101-9812

EJECTOR SYSTEMS

Aubrey -
This is what
is installed
@ McCormick
J.P.

RE

SEP 27 1993
Groundwater Protection
Division

September 23, 1993

Joel Padgett
SCDHOC
2600 Bull St.
Columbia, SC 29201

Dear Customer,

All smile - no lip.

That's what **Ejector Systems, Inc.**'s "Product Only" pumping system puts at your disposal. It's the ability to avoid the permitting process, minimize the possibility of litigation and do it all at a price that is downright paltry.

Let's take it one point at a time.

1) You know **Ejector Systems Inc.**'s reputation for high quality pumps and controllers. Ten years of aggressive research and development has fine-tuned our "Product Only" pumping system to meet or exceed all standards.

2) Permits are not needed with a "Product Only" well. Your waste oil service is ultimately responsible for disposal. With your know-how and our equipment you can be in regulatory compliance with a minimum of hassle.

3) You can sleep like a baby, confident in the knowledge that our pumping systems will perform as specified: if the product fails to perform as indicated or is found unsatisfactory for any reason, it may be returned.

4) What's it cost? For as little as $ 1,600 per well you can have **Ejector Systems Inc.**'s quality working for you. Like we said: paltry.

If you would like further information or a quote, please fill out and fax us the brief form enclosed. Send it to my attention, John Nehrbass... and get ready to smile.

Yours truly,
EJECTOR SYSTEMS, INC.

John Nehrbass

John Nehrbass, P.E.
Marketing Director

JHN/cm

708-543-2214
1-800-OIL-LEAK
Fax 708-543-2014

Ejector Systems Incorporated
910 National Avenue, Addison, IL 60101-9812

EJECTOR SYSTEMS

PRODUCT ONLY PUMPING SYSTEM REQUEST FOR QUOTE

Joel Padgett
SCDHOC
2600 Bull St.
Columbia, SC 29201

Date:_____
Needed Date:_____

Phone:
FAX:_____
Reference:_____

For information only please check this box ☐

Please fill in the following information and fax this sheet to 708-543-2014 to receive a quotation.

____ Well diameter
____ Number of wells
____ Total well depth
____ Ground to static level
____ Possible tidal effect (Y or N)
____ Average distance between wells

Optional Items:

___ Explosion-proof high tank shut-off
___ Tidal intake (multi-well control)
___ Level tracking (single-well control)

708-543-2214
1-800-OIL-LEAK
Fax 708-543-2014

South Carolina
DHEC
Department of Health and Environmental Control

ENVIRONMENTAL QUALITY CONTROL
UPPER SAVANNAH DISTRICT
613 SOUTH MAIN ST., GREENWOOD, SC 29646
PHONE: 223-0333

MEMORANDUM

TO: Jack Padgett
UST State Corrective Act.
Ground Water Protection Div.

FROM: Evelyn L. Lopez
Upper Savannah

DATE: 5 April 93

SUBJECT: "Lil Cricket" sinkhole in McCormick

Hi Jack,

I would like to inform you that Lil Cricket in McCormick has a sinkhole few feet away from the main road and at least 30 yards away from the UW or RW? I discussed this problem with you on the phone this morning. The facility owner should be notified concerning this problem. Thanks.

APR 0 6 1993
Groundwater Prote...
Division

Commissioner: Michael D. Jarrett Board: Henry S. Jordan, MD, Chairman John B. Pate, MD, Vice Chairman William E. Applegate, III, Secretary
Toney Graham, Jr., MD John H. Burris Richard E. Jabbour, DDS Currie B. Spivey, Jr.

2600 Bull Street, Columbia, South Carolina 29201

1. No Joel

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

01851

2. Payee	Law Engineering	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 888013 Street Address Atlanta, GA 30356-0013 City State Zip		Ground-Water Protection Division

5. Dates	6. Description	7. Amounts
04-02-93	Contractor payment through cost proposal method of expenses	3908.96
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Central 576	
	GWPD #06443	
	McCormick County	
	CP #0175 / Inv. #39484516622	
	Fed Tax I.D. #58-1818906	
	8. Total	3908.96

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

04-02-93 (Date)

James R. Sheridan (Signature)

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

	1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58-65 Net Amount
A	P 2			1								

	KF	T Code	Voucher No.			Cost Center	Fund	Class	Analytical	Amount
B	P 2			2		4AE10	R040	52140	AE160	3908.96
	1-2	3-5	6-10	11		12-16	17-20	21-25	26-35	52-59

DHEC 108 (Rev 3/81)

Joel

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, .

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

April 1, 1993

Mr. B. T. Shane
Law Engineering
P.O. Box 888013
Atlanta, GA 30356-0013

Re: Crown Central 576
GWPD Site ID #06443
Invoice# 3948451622, CP# 0175
McCormick County

Dear Mr. Shane:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed invoice# 3948451622 for the referenced facility.

The invoice has been approved for $4,343.28. A 10% retainer (434.32) will be held until finalization of the Cost Proposal is completed. A check for $3,908.96 will be processed and sent to Law Engineering within approximately three to four weeks.

The amount of $104.13 is not approved and is detailed as follows:

(1) Task 4C-Rentals, $20. Survey Rod & Level not on approved Cost Proposal.

(2) Task 4H-Miscellaneous, $6.00. Field Equipment exceeds approved CP rate of $10.00 per unit by $3.00 per unit (2 x $3.00 = $6.00).

(3) Task 4H-Miscellaneous, $78.13. Per Diem charges not approved unless accompanied by paid hotel/motel receipts for overnight stay.

At the time the final invoice or retainers and/or related reports are reviewed, SCDHEC will consider approval and payment of previously denied items, provided appropriate documentation and written justification has been received.

recycled paper

If you have any questions, please call Russ Revere at (803) 734-5485.

Sincerely,

Janet R. Sheridan, Manager
Financial & Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

RBR/CC0175

cc: Joel Padgett, GWPD

Matthew Gillmore, Crown Central Petroleum, PO Box 1168 711, Baltimore, MD 21203

Goel

: No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER GW 0161

2. Payee	Crown Central Petroleum Corp.	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 1168 (Street Address)		Ground-Water Protection I
	Baltimore, MD 21203 (City / State / Zip)		

5. Dates	6. Description	7. Amounts
03-11-93	Reimbursement of expenses incurred in remediation	14595.00
	of releases from underground storage tanks as	
	provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC-576	
	GWPD #06443	
	McCormick County	
	Fed Tax I.D. #52-0550682	
	8. Total	14595.00

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

03-11-93 (Date) David R Marston

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

	1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax I	45-52 Gross Amount	53-57 Discount	58- Net Ar
A	P 2			1								

	KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amou
B	P 2			2	4AE10	R040	52140	AE160	14595.0

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52-59

DHEC 108 (Rev. 3/81)

1. No. Joel

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

01669

2. Payee	W.S. GOWAN WELL DRILLING	3. Vendor No.	4. Cost Center Title
Address	101 STONE STATION FARM Street Address SPARTANBURG, SC 29306 City State Zip	-	Ground-Water Protection Division

5. Dates	6. Description	7. Amounts
03-09-93	Contractor payment through cost proposal method of expenses	16,306.80
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	CROWN STATION #576	
	GWPD #06443	
	TAX ID #57-0532491	
	MCCORMICK COUNTY	
	CP #0175	
	8. Total	16,306.80

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

03-09-93 (Date) — Signature

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

	1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No.	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58-65 Net Amount
A	P 2			1								

	KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amount
B	P 2			2	4AE10	R040	52140	AE160	16,306.80
	1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	52-59

DHEC 108 (Rev. 3/81)

1. No. Joel

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

01670

2. Payee	EJECTOR SYSTEMS, INC.	3. Vendor No.	4. Cost Center Title
Address	910 NATIONAL AVE. (Street Address)		Ground-Water Protection Division
	ADDISON, ILLINOIS 60101 (City / State / Zip)		

5. Dates	6. Description	7. Amounts
03-09-93	Contractor payment through cost proposal method of expenses	17,324.02
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	CROWN CENTRAL #576	
	GWPD #06443	
	MCCORMICK COUNTY	
	TAX ID #36-3472564	
	CP #0175	
	8. Total	17,324.02

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

03-09-93 (Date) — Signature

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

	1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No.	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58-65 Net Amount
A	P 2			1								

	KF	T Code	Voucher No.			Cost Center	Fund	Class	Analytical	Amount
B	P 2			2		4AE10	R040	52140	AE160	17,324.02
	1-2	3-5	6-10	11		12-16	17-20	21-25	26-35	52-59

DHEC 108 (Rev 3/81)

Joel

: No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

GW 01603

2. Payee	Crown Central Petroleum Corp.	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 1168		Ground-Water Protection I
	Street Address Baltimore, MD 21203		
	City State Zip		

5. Dates	6. Description	7. Amounts
03-08-93	Reimbursement of expenses incurred in remediation	997.40
	of releases from underground storage tanks as	
	provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC-576	
	GWPD #06443	
	McCormick County	
	Fed Tax I.D. #52-0550682	
	8. Total	997.40

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

03-08-93
Date

David B. Shearin

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

	1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58- Net Am
A	P 2			1								

	KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amou
B	P 2	[redacted]	[redacted]	2	4AE10	R040	5214O	AE160	997.40

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52-59

DHEC 108 (Rev. 3/81)

Joel

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

March 8, 1993

Mr. W.S. Gowan
W.S. Gowan Well Drilling
101 Stone Station Farm
Spartanburg, SC 29306

Re: Crown Station #576
GWPD Site ID# 06443
Invoice Number 01/26/93
McCormick County

Dear Mr. Gowan:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed W.S. Gowan Well Drilling invoice number 01/26/93 for the referenced facility.

The invoice has been approved for the amount of $16,306.80. A check in the amount of $16,306.80 will be processed and sent to W.S. Gowan Well Drilling in approximately three weeks.

The total amount of the invoice should have read $16,306.80 instead of $16,307.65. The differences of $.85 is the result of a mathematical error on page 3 and the wrong total being typed on the cover page of the invoice.

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP2

cc: Matthew Gilmore, Crown Central Petroleum,
PO Box 1168 711, Baltimore, MD 21203

Joel Padgett, UST Corrective Action Section

Mr. James O. Lawrence, Law Environmental, Inc.
112 Townpark Drive, Kennesaw, GA 30144-5599

recycled paper

Joel

: No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER GW 0:807

2. Payee	Crown Central Petroleum Corp.	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 1168		Ground-Water Protection I
	Street Address		
	Baltimore, MD 21203		
	City State Zip		

5. Dates	6. Description	7. Amounts
03-08-93	Reimbursement of expenses incurred in remediation	786.67
	of releases from underground storage tanks as	
	provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC-576	
	GWPD #06443	
	McCormick County	
	Fed Tax I.D. #52-0550682	
	8. Total	786.67

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

03-08-93
Date

James R. Shealy

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2	3-5	6-10	11	12-17	18-22	23-32	39-43	44	45-52	53-57	58-
KF	T Code	Voucher No.		Document No	Vendor No.	Invoice No.	Manual Vo.	Tax	Gross Amount	Discount	Net Am
P 2			1								

KF	T Code	Voucher No		Cost Center	Fund	Class	Analytical	Amou
P 2			2	4AE10	R040	5214O	AE160	786.67

1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	52-59

DHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

March 8, 1993

Mr. B. Sanders
Ejector Systems, Inc.
910 National Ave.
Addison, Illinois 60101

Re: Crown Station #576
GWPD Site ID# 06443
Invoice Number 2280
McCormick County

Dear Mr. Sanders:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Ejector Systems, Inc. invoice number 2280 for the referenced facility.

The invoice has been approved for the full amount of $17,324.02. A check in the amount of $17,324.02 will be processed and sent to Ejector Systems, Inc. in approximately three weeks.

If you have any questions, feel free to call John Marcucci at (803) 734-0708.

Sincerely,

Janet R. Sheridan, Manager
Financial and Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRM/0175PP2

cc: Matthew Gilmore, Crown Central Petroleum,
PO Box 1168 711, Baltimore, MD 21203

Joel Padgett, UST Corrective Action Section

Mr. James O. Lawrence, Law Environmental, Inc.
112 Townpark Drive, Kennesaw, GA 30144-5599

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South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

March 1, 1993

Ms. Merril O'Connell
Crown Central Petroleum Corp.
P.O. Box 1168
Baltimore, MD 21203

Re: Crown Facility SC 576
GWPD Site #06443
Additional supportive documentation for Invoice #9111-306
McCormick County

Dear Ms. O'Connell:

The S.C. Department of Health and Environmental Control (SCDHEC) has recieved the referenced documentation submitted by Crown Central Petroleum Corporation on December 15, 1992. Upon review of the supporting documents, previously denied costs totaling **$786.67** have been approved. These costs are as follows:

- $66.67 for dry van rental.

- $720.00 for disposal of containerized soil.

A check will be processed and sent directly to Crown in about three to four weeks. Should you have questions on any of the above, fell free to contact Joel Padgett at (803) 734-5369.

Sincerely,

David G. Baize, Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

DGB/jpp
06443.15

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management Section, GWPD

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

March 1, 1993

Mr. Rick Shaeffer
Crown Central Petroleum Corp.
P.O. Box 1168
Baltimore, MD 21203

Re: Crown Facility SC 576
GWPD Site #06443
Invoice #29068
McCormick County

Dear Mr. Shaeffer:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$997.40.** A check will be processed and sent directly to Crown in about three to four weeks.

Should you have questions on any of the above, feel free to contact Joel Padgett at (803) 734-5369.

Sincerely,

David G. Baize, Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

DGB/jpp
06443.16

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management Section, GWPD

recycled paper

S.C. DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
FORM 638 (REV. 10/86)

APPLICATION FOR ENCROACHMENT PERMIT

(ENCROACHMENT PERMIT OTHER THAN A PUBLIC UTILITY)

3/1/93

No. 233-297

A-57673

APPLICANT: Law Engineering, Inc.
AND
ADDRESS: 720 Gracern Road, Suite 132
Columbia, SC 29210

TELEPHONE NUMBER: (803) 798-1200

COUNTY: McCormick

ROAD/ROUTE: Intersection of N. Mine (Hwy 28) and Fifth Street, in City of McCormick

ROAD NAME:

1. The undersigned applicant hereby applies to the South Carolina Department of Highways and Public Transportation (SCDHPT) for a permit for encroachment on State Highway Right of Way as shown and described below:

2. Type of Encroachment: Construction of ground water monitoring wells (MW-8, MW-10, MW-11, MW-12, and MW-15). See attached Figures 1 and 2.

3. Description of location with reference to highway: Monitoring wells will be installed in right-of-way approximately 3 feet off roadway along N. Mine Street and 5th Street in McCormick, South Carolina. See Figure 1 for proposed locations.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

4. The undersigned applicant hereby requests the SCDHPT to permit encroachment on the Department right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the Department's "A Policy for Accommodating Utilities on Highways Rights of Way" and "Standard Specifications for Highway Construction" (made a part hereof by reference) on file in the Utility Office of the Department, and all general provisions on the reverse hereof and special provisions below or attached hereto during the installation, operation and maintenance of said encroachment within the Department Right of Way. The applicant hereby further agrees, and binds his heirs, successors, assigns, to assume any and all liability this Department might otherwise have in connection with accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing, of the physical appurtenances contemplated herein and agrees to indemnify this Department for any liability incurred or injury or damage sustained by reason of the past, present, or future existence of said appurtenances.

APPLICANT NAME: Bryan Shane (PLEASE PRINT OR TYPE) DATE REQUESTED: 1/20/93

APPLICANT SIGNATURE: BJ Shane TITLE: Project Hydrogeologist

In compliance with your request and subject to all the provisions, terms, conditions and restrictions stated in the application, general provisions on the reverse hereof, and special provisions below or attached hereto, the Department approves the request. This permit shall become null and void unless the work contemplated herein shall have been completed prior to May 1, 1993.

SPECIAL PROVISIONS: See attached.

OK
J. A. Holladay, R.M.E.

1/22/93 DATE RECEIVED BY RES. MAINT. ENGR.

1/22/93 DATE FORWARDED

Robert Lewis SCDHPT APPROVAL 2-27-93 DATE

1-25-93 DATE RECEIVED BY DIST. ENGR. ADMIN.

1-25-93 DATE FORWARDED

☐ RESIDENT MAINTENANCE ENGINEER ☐ STATE HIGHWAY ENGINEER

☒ DISTRICT ENGINEERING ADMINISTRATOR ☐ DISTRICT MAINT./CONSTRUCTION ENGINEER

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

February 9, 1993

Subject: Application for Encroachment Permit received
February 8, 1993
Crown SC #576
SCDHEC GWPD Site #06443
McCormick County

To: Mr. B.K. Jones
Special Assistant to the Executive Director
SC Department of Highways and Public Transportation (SCDHPT)
P.O. Box 191
Columbia, SC 29202

Through: Bob Hutchinson, Hydrogeologist
SCDHEC/SCDHPT Liaison

2-9-93

Dear Mr. Jones:

The Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Application for Encroachment Permit. The application, submitted to the SCDHPT by Law Engineering, requests permission to install 4 ground water monitoring wells (MW-8, MW-10 through 12, and MW-15) in the right-of-way along North Mine Street and 5th Street in McCormick, South Carolina.

The SCDHEC considers the proposed siting of the monitoring wells as necessary and appropriate to better define the extent of groundwater contamination at the Crown SC #576 site. The Department, therefore, respectfully requests that the SCDHPT approve the Application as submitted. Should you require additional information regarding this site, feel free to contact me at (803) 734-5369.

Sincerely,

Joel P. Padgett, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

recycled paper

B92

COLUMBIA BUSINESS FORMS

S.C. DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION FORM 638 (REV. 10/86)

APPLICATION FOR ENCROACHMENT PERMIT

No. 233-297

(ENCROACHMENT PERMIT OTHER THAN A PUBLIC UTILITY)

APPLICANT: AND ADDRESS: Law Engineering, Inc.
720 Gracern Road, Suite 132
Columbia, SC 29210

TELEPHONE NUMBER: (803) 798-1200

COUNTY: McCormick

ROAD/ROUTE: Intersection of N. Mine (Hwy 28) and Fifth Street, in City of McCormick

ROAD NAME:

1. The undersigned applicant hereby applies to the South Carolina Department of Highways and Public Transportation (SCDHPT) for a permit for encroachment on State Highway Right of Way as shown and described below:

2. Type of Encroachment: Construction of ground water monitoring wells (MW-8, MW-10, MW-11, MW-12, and MW-15). See attached Figures 1 and 2.

3. Description of location with reference to highway: Monitoring wells will be installed in right-of-way approximately 3 feet off roadway along N. Mine Street and 5th Street in McCormick, South Carolina. See Figure 1 for proposed locations.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

4. The undersigned applicant hereby requests the SCDHPT to permit encroachment on the Department right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the Department's "A Policy for Accommodating Utilities on Highways Rights of Way" and "Standard Specifications for Highway Construction" (made a part hereof by reference) on file in the Utility Office of the Department, and all general provisions on the reverse hereof and special provisions below or attached hereto during the installation, operation and maintenance of said encroachment within the Department Right of Way. The applicant hereby further agrees, and binds his heirs, successors, assigns, to assume any and all liability this Department might otherwise have in connection with accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing, of the physical appurtenances contemplated herein and agrees to indemnify this Department for any liability incurred or injury or damage sustained by reason of the past, present, or future existence of said appurtenances.

APPLICANT NAME: Bryan Shane (PLEASE PRINT OR TYPE) DATE REQUESTED: 1/20/93

APPLICANT SIGNATURE: BJ Shane TITLE: Project Hydrogeologist

In compliance with your request and subject to all the provisions, terms, conditions and restrictions stated in the application, general provisions on the reverse hereof, and special provisions below or attached hereto, the Department approves the request. This permit shall become null and void unless the work contemplated herein shall have been completed prior to May 1, 1993.

SPECIAL PROVISIONS:

See attached.

OK
J. A. Holladay, R.M.E.

1/22/93 DATE RECEIVED BY RES. MAINT. ENGR. 1-25-93

1/22/93 DATE FORWARDED 1-25-93

SCDHPT APPROVAL DATE

☐ RESIDENT MAINTENANCE ENGINEER ☐ STATE HIGHWAY ENGINEER

COLUMBIA BUSINESS FORMS

S.C. DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION FORM 630 (REV. 10/86)

APPLICATION FOR ENCROACHMENT PERMIT

No. 233-297

(ENCROACHMENT PERMIT OTHER THAN A PUBLIC UTILITY)

APPLICANT: Crown Central Petroleum Corp.
AND Post Office Box 1168
ADDRESS: Baltimore, Maryland 21203

TELEPHONE NUMBER: (410) 659-4862

COUNTY: McCormick

ROAD/ROUTE: Intersection of N. Mine (Hwy 28) and Fifth Street, in City of McCormick

ROAD NAME:

1. The undersigned applicant hereby applies to the South Carolina Department of Highways and Public Transportation (SCDHPT) for a permit for encroachment on State Highway Right of Way as shown and described below:

2. Type of Encroachment: Construction of ground water monitoring wells (MW-8, MW-10, MW-11, MW-12, and MW-15). See attached Figures 1 and 2.

3. Description of location with reference to highway: Monitoring wells will be installed in right-of-way approximately 3 feet off roadway along N. Mine Street and 5th Street in McCormick, South Carolina. See Figure 1 for proposed locations.

(Attach sketch indicating roadway features such as: pavement width, shoulder width, sidewalk and curb and gutter location, significant drainage structure, north arrow, right of way width, and location of the proposed encroachment with respect to the roadway centerline and the nearest intersecting road on the State system.)

4. **The undersigned applicant hereby requests the SCDHPT to permit encroachment on the Department right of way as described herein. It is expressly understood that the encroachment, if and when constructed, shall be installed in accordance with the sketch attached hereto and made a part hereof. The applicant agrees to comply with and be bound by the Department's "A Policy for Accommodating Utilities on Highways Rights of Way" and "Standard Specifications for Highway Construction" (made a part hereof by reference) on file in the Utility Office of the Department, and all general provisions on the reverse hereof and special provisions below or attached hereto during the installation, operation and maintenance of said encroachment within the Department Right of Way. The applicant hereby further agrees, and binds his heirs, successors, assigns, to assume any and all liability this Department might otherwise have in connection with accidents or injuries to persons, or damage to property, including the highway, that may be caused by the construction, maintenance, use, moving or removing, of the physical appurtenances contemplated herein and agrees to indemnify this Department for any liability incurred or injury or damage sustained by reason of the past, present, or future existence of said appurtenances.**

APPLICANT NAME: ~~Mr. Mat Gilmore~~ Carole R. Zdunek (PLEASE PRINT OR TYPE) DATE REQUESTED:

APPLICANT SIGNATURE: Carole R. Zdunek TITLE: Real Estate Admin. Mgr.

In compliance with your request and subject to all the provisions, terms, conditions and restrictions stated in the application, general provisions on the reverse hereof, and special provisions below or attached hereto, the Department approves the request. This permit shall become null and void unless the work contemplated herein shall have been completed prior to March 1, 1993.

SPECIAL PROVISIONS:

OK J. A. Holladay, P.E.

RECEIVED
FEB 08 1993
Groundwater Protection Division

11/24/92	11/24/92 LKD	~~J. K. Derriso~~	
DATE RECEIVED BY RES. MAINT. ENGR.	DATE FORWARDED	SCDHPT APPROVAL	DATE
11-25-92	11-30-92	☐ RESIDENT MAINTENANCE ENGINEER	☐ STATE HIGHWAY ENGINEER

January 20, 1993

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

South Carolina Department of Highways
and Public Transportation
Post Office Box 2666
McCormick, South Carolina 29835

Attention: Mr. J.A. Holiday
Resident Maintenance Engineer

Subject: Right-of-Way Encroachment Permit
Former Crown Station 576
201 Highway 28 and 32
McCormick, South Carolina
Law Engineering Project No. 499-2-4051-02

Gentlemen:

Law Engineering, Inc., on behalf of Crown Central Petroleum, hereby submits this application for encroachment to install monitoring wells MW-8, MW-10, MW-11, MW-12, and MW-15 at the locations shown on Figure 1.

The monitoring wells will be constructed with surface-mount covers and remain flush to the ground surface. A 24-inch concrete pad will be poured around the well cover (See Figure 2).

Your consideration and cooperation in this matter is greatly appreciated. If you have any questions concerning this request, please contact us.

Sincerely,

LAW ENGINEERING, INC.

BTShane
Bryan T. Shane
Project Hydrogeologist

BTS:tdb

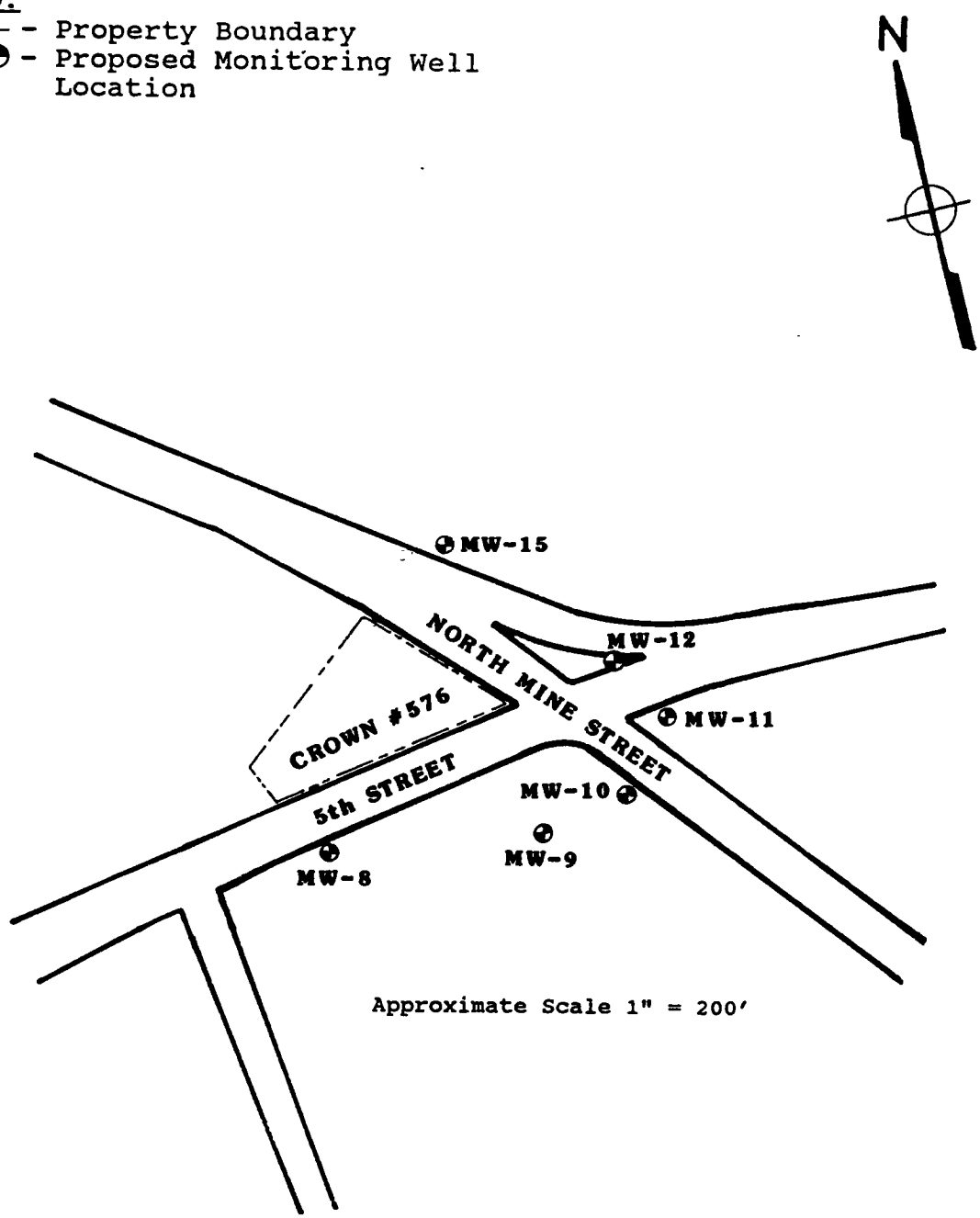
cc: Mr. Mat Gilmore/Crown Central Petroleum Corporation

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

LEGEND:

———— - Property Boundary

⊕ - Proposed Monitoring Well Location

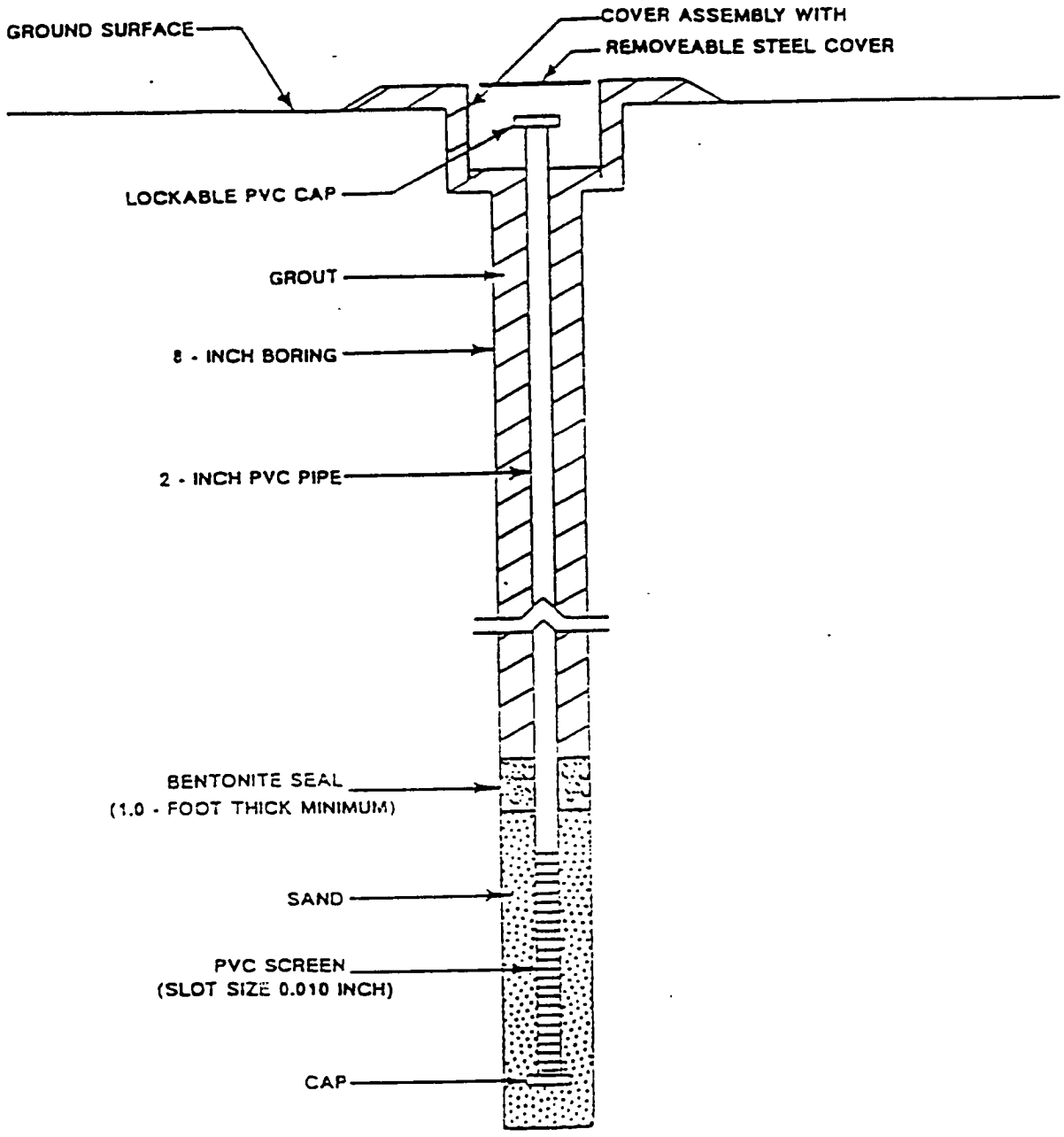


Approximate Scale 1" = 200'

Reference: City of McCormick Tax Maps

LAW ENGINEERING, INC. COLUMBIA, SOUTH CAROLINA				Site Plan for Proposed Off-Site Monitoring Wells
Crown Service Station No. 576 McCormick, South Carolina Law Engineering Project No. 449-2-4051-02	DWN. BY	MTA	11/92	SCALE: As shown
	CKD. BY	BS	11/92	FIGURE NO. 1
	APPR'D.	JCL	11/92	

TYPICAL DIAGRAM OF A TYPE II MONITORING WELL



	LAW ENGINEERING **COLUMBIA, SOUTH CAROLINA**	FIGURE 2

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

March 1, 1993

Mr. Rick Shaeffer
Crown Central Petroleum Corp.
P.O. Box 1168
Baltimore, MD 21203

Re: Crown Facility SC 576
GWPD Site #06443
Invoices #39-2665, #39-2762, #39-3015, #39-3016, and #39-3152
McCormick County

Dear Mr. Shaeffer:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced invoices for payment of **$14,595.00**. This amount reflects the following adjustments:

For Invoice #39-2762:

- $180.00 less for per diem; no supporting documents (lodging receipts) were provided with the invoice.

For Invoice #39-3016:

- $78.00 less for Hydrogeologist for free product bailing, well surveying, well purging, and sampling; this office considers these activities to be technician-level work.

- $62.00 less for sample shipping; no supporting documents (shipping invoices) were provided to the SCDHEC.

For Invoice #39-3015:

- $48.00 less for Hydrogeologist for free product bailing; this office considers free product bailing to be technician-level work.

A check will be processed and sent directly to Crown in about three to four weeks. The SCDHEC will reconsider payment of denied costs upon receipt of appropriate supportive documentation.

Should you have questions on any of the above, feel free to contact Joel Padgett at (803) 734-5369.

recycled paper

Sincerely,

David G. Baize, Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

DGB/jpp
06443.17

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management, GWPD

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

February 16, 1993

Mr. John Langley
P.O. Box 656
McCormick, SC 29835

Dear Mr. Langley:

You called on February 11 to ask whether you could give approval to a contractor to place wastewater from a groundwater remediation system at the Lil Cricket in McCormick into the town's wastewater plant. I spoke with Mr. Read Minor of our Columbia office who handles projects of this nature in South Carolina.

Mr. Minor said that if the wastewater treatment permittee believes that the treatment plant can handle this wastewater without the wastewater causing the treatment plant to be out of permit compliance, then the permittee could give the contractor preliminary approval to discharge to the permittee's facility. Minor said that if the permittee gives the contractor approval, the industrial wastewater division of DHEC could then consider final approval for the contractor.

If you have any further questions, please contact Mr. Joel Padgett of our Columbia office at 803-734-5369.

Sincerely,

Billy DuPre

Billy DuPre
Wastewater Facility Evaluator
Upper Savannah District

RECEIVED
FEB 25 1993
Groundwater Protection Division

BD:sm
cc: Reading
File
Mr. Joel Padgett
Mr. Read Minor
Ms. Evelyn Lynge

(lett93)pg.2
^E

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

February 9, 1993

Subject: Application for Encroachment Permit received
February 8, 1993
Crown SC #576
SCDHEC GWPD Site #06443
McCormick County

To: Mr. B.K. Jones
Special Assistant to the Executive Director
SC Department of Highways and Public Transportation (SCDHPT)
P.O. Box 191
Columbia, SC 29202

Through: Bob Hutchinson, Hydrogeologist
SCDHEC/SCDHPT Liaison

2-9-93

Dear Mr. Jones:

The Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Application for Encroachment Permit. The application, submitted to the SCDHPT by Law Engineering, requests permission to install 4 ground water monitoring wells (MW-8, MW-10 through 12, and MW-15) in the right-of-way along North Mine Street and 5th Street in McCormick, South Carolina.

The SCDHEC considers the proposed siting of the monitoring wells as necessary and appropriate to better define the extent of groundwater contamination at the Crown SC #576 site. The Department, therefore, respectfully requests that the SCDHPT approve the Application as submitted. Should you require additional information regarding this site, feel free to contact me at (803) 734-5369.

Sincerely,

Joel P. Padgett, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

recycled paper

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

PURCHASE ORDER VOUCHER

Joel

P.O. Z017[illegible]

COMMENTS

Law Engineering
P.O. Box 102655
Atlanta, GA. 30368-0655

Tax I.D.# 58-1818906

LOCATION SITE: CROWN STATION SC-576
PCAS-7463
GWPD# 06443

SPO

Regina A. Wilson
Signature Date
9/2/92

PI

Signature Date 9-4-92

KF	T CODE	DOCUMENT NO.	DOC. DATE	VENDOR NO.	COST CENTER	FUND	CLASS	ANALYTICAL	AMOUNT
SPO	640	Z0175	8/26/92	51759	4AE10	R040	52140	AE160	~~64660.5~~ 4735.80

KF	T CODE	VOUCHER NO.		VOUCHER DATE	DOCUMENT NO.	INVOICE NO.	MANUAL NO.	Tax	GROSS AMOUNT	DISCOUNT	NET AMOUNT
P1	670		1		Z0175	Z0175PP1			4735.80	—	4735.80

KF	T CODE	VOUCHER NO.		COST CENTER	FUND	CLASS	ANALYTICAL	P/C	AMOUNT
P1			2						

C=COMPLETE
P=PARTIAL

DHEC 48-014 (4/83)

SOUTH CAROLINA
DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
P.O. BOX 191
COLUMBIA, S.C. 29202

February 4, 1993

RECEIVED
FEB 08 1993
Groundwater Protection
Division

Mr. Bob Hutchinson - Hydrogeologist
Ground Water Protection Division
Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Ground Water Monitoring Wells along State Highways in South Carolina

Dear Mr. Hutcheson:

Attached please find copies of applications for encroachment permits submitted by Crown Petroleum Corporation for the installation of monitoring wells along various locations in Lexington, McCormick, and Newberry Counties. Copies of these applications are attached for your ready reference.

It would be appreciated if you would review these applications and advise whether DHEC concurs with these proposed installations.

With kind regards, I am

Yours very truly,

B. K. Jones
Special Assistant to
Executive Director

cc:

Mr. Joel P. Padgett - Hydrogolist
Ground Water Protection Division
Department of Health and Environmental Control

Joel

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

February 1, 1993

Mr. Bryan Shane
Law Engineering
P.O. Box 102655
Atlanta, GA 30368-0655

Re: Crown Station #576
GWPD ID# 06443, PCAS 7463
Invoice Number 3947131622, CP #0175
McCormick County

Dear Mr. Shane;

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed Law Engineering invoice numbered 3947131622 for the referenced facility.

The invoice submitted totaled $5,062.00. Your invoice, after you faxed a corrected page (page 4 of 8) per our phone conversation, totaled $5,262.00. That invoice has been approved for $5,262.00; and represents the first invoice against Cost Proposal #0175. A retainer of <$526.20> along with any previously held retainer(s) will be withheld until the documentation/report of the related technical work has been reviewed and/or approved by the SCDHEC. A check for $4,735.80 will be processed and sent to Law Engineering in approximately three to four weeks.

An adjustment, in the amount of $200.00, has been added to the above invoice per our phone conversation. This amount represents the following:

(1) $200.00: Invoice Summary Total Page - EAP Implementation. The error is apparently due to a misunderstanding. The Cost Proposal Preparation charges allowed, per revised statutes, is $50.00 per task as submitted on your original Cost Proposal. This one time charge allowed is payable with the <u>initial</u> invoice.

Please note: The Invoice Preparation charge allowed is $100.00 per task invoiced; and, is payable with the <u>final</u> invoice for the respective Cost Proposal. Provided, of course, it is on the original Cost Proposal or subsequently amended Cost Proposal.

recycled paper

If you have any questions, feel free to call J.C. Jones at (803) 734-0032.

Sincerely,

Janet R. Sheridan, Manager
Financial & Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water

JCJ/06443-1

cc: Joel Padgett, UST State Corrective Action Section
Mr. Matthew Gilmore, Crown Central Petroleum, P.O. Box 1168, Baltimore, MD 21203

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

February 1, 1993

Mr. Bryan Shane
Law Engineering
P.O. Box 102655
Atlanta, GA 30368-0655

Re: Crown Station #576
GWPD ID# 06443, PCAS 7463
Invoice Number 3947131622, CP #0175
McCormick County

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Please note: The Invoice Preparation charge allowed is $100.00 per task invoiced; and, is payable with the <u>final</u> invoice for the respective Cost Proposal. Provided, of course, it is on the original Cost Proposal or subsequently amended Cost Proposal.

recycled paper

If you have any questions, feel free to call J.C. Jones at (803) 734-0032.

Sincerely,

Janet R. Sheridan

Janet R. Sheridan, Manager
Financial & Data Management Section
Ground-Water Protection Division
Bureau of Drinking Water

JCJ/06443-1

cc: Joel Padgett, UST State Corrective Action Section
Mr. Matthew Gilmore, Crown Central Petroleum, P.O. Box 1168, Baltimore, MD 21203

Padgett

No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

GW 1238

2. Payee	Law Engineering Inc. 431 Minuet Ln. P.O. Box 240674 Street Address Charlotte, NC 28217 City State Zip	3. Vendor No.	4. Cost Center Title Ground-Water Protection D

5. Dates	6. Description	7. Amounts
01-06-93	Reimbursement through contractor payment of expenses	2180.20
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC 576	
	GWPD #06443	
	McCormick County	
	Fed Tax I.D. #58-1818906	
	8. Total	2180.20

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

01-06-93
Date

Janet R. Sheridan

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2 KF	3-5 T Code	6-10 Voucher No	**	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58- Net Ar
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Activities	Amou
P 2			2	4AE10	R040	52140	4E160	2180.20

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52-5

OHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

January 4, 1993

Mr. Bryan T. Shane
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443
Invoice #39-4607-1622
McCormick County

Dear Mr. Shane:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$2180.20.** A check will be processed and sent directly to Law Engineering in about three to four weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803) 734-5369.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.14

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management Section, GWPD
Matthew Gilmore, Crown Central Petroleum
P.O. Box 1168
Baltimore, MD 21203

recycled paper

Padgett

No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

GW 834

2. Payee / Address	3. Vendor No.	4. Cost Center Title
LAW ENGINEERING 720 GRACERN ROAD, SUITE 132 PO BOX 21879 Street Address COLUMBIA, SC 29221 City State Zip		Ground-Water Protection D

5. Dates	6. Description	7. Amounts
12-31-92	Reimbursement through contractor payment of expenses incurred in remediation of release from underground storage tanks as provided under Section 44-2-130 SC Code of Laws (SUPERB Act).	1,749.00
	CROWN FACILITY SC 576	
	GWPD #06443	
	McCORMICK COUNTY	
	TAX ID #58-1818906	
	8. Total	1,749.00

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

12-31-92 (Date) David B. Shealy

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

KF	T Code	Voucher No		Document No	Vendor No.	Invoice No.	Manual Vo.	Tax	Gross Amount	Discount	Net A
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amou
P 2			2	4AE10	R040	52140	AE160	1,749.00

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52-6

DHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

December 29, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443
Invoice #39-4531-1622
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$1749.00.** A check will be processed and sent directly to Law Engineering in about three to four weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803) 734-5369.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.13

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management Section, GWPD
Matthew Gilmore, Crown Central Petroleum
P.O. Box 1168
Baltimore, MD 21203

recycled paper

9/92 GWPD ID# 06443

PLEASE CHECK ONE (This sheet is ONLY for the following unassigned items.)

PRIORITY ACTION; PROCESS IMMEDIATELY

- ☐ Initial Release Report
- ☐ Monitor Well Request
- ☐ Expanded AP (EAP)

- ☐ Site Assessment Report
- ☑ Transfer of Ownership*
- ☐ Closure Report*

* : Requires a Change DB form

(initial)		(date)
1 ( )	PM on D-base? If yes, send to PM	
2 ( )	Enter MDD on FP	
3 ( )	Amnesty II? If rank 3, go to 304 file	
4 ( )	Assign PM	
5 ( )	Log on DB as PM	
6 ( )	Track on FoxPro	
7 ( )	Processed	

(initial)		(date)
1 (KM)	PM on D-base? If yes, send to PM	11-20-92
2 (RW)	Enter MDD on FP	NO
3 (LW)	Amnesty II? NO If rank 3, go to 304 file	11-2092
4	Change D-Base Form Attach Notification Send changes to MW/KM	12-8-92
5	Report is complete	12-8-92
	SC Cert. lab	
	Complete lab CoC	
	Scaled Maps	
	Tank pit sampled	
	Disp/pipes sampled	
	(Use approp. Guidelines)	
6 ( )	Assign PM	
7 ( )	Log on DB as PM	
8 ( )	Track on FoxPro	
9 ( )	Rank/SUPERB	

STOCKPILED SOILS? YES NO (Please circle)

PROJECT MANAGER: Joel Padgett

NOTES:

notification attached

South Carolina DHEC
Department of Health and Environmental Control

UNDERGROUND STORAGE TANK TRANSFE

This Site is Under SUPERB. Law Engineering is the Contractor.
ID # N-35-NO-06443

FORMER OWNER

Name: Crown Central Petroleum Corp.

Address: 1 N. Charles Street
Baltimore, MD 21201

NEW OWNER

Name: Li'l Cricket Food Stores, Inc.

Address: P. O. Box 4551
Spartanburg, SC 29305

FACILITY (See attached registration form)

Name: SC-576 (Fast Fare)

Address (street or highway): 201 Hwy's 28 & 32 (address differs from registration)
McCormick County; McCormick, SC 29835

NUMBER OF UNDERGROUND STORAGE TANKS AT THIS LOCATION: three 8,000 steel ust's

PERMIT NUMBER: N-35-NO-06443

NEW OWNER SIGNATURE:

Gordon D Zuber
(signature)

GORDON D. ZUBER - PRES.
(print or type)

DATE OF TRANSFER: 10-13-92

**NOTE: If the date of transfer is after March 23, 1990 please include a copy of the results of a site assessment as required by the SC Underground Storage Tank Control Regulations:

Section 280.72 Assessing the site at change-in-owner, closure or a change-in-service.

(a) Before permanent change-in-owner, closure or a change-in-service is completed, owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to ground water, and other factors appropriate for identifying the presence of a release. The requirements of this section are satisfied if one of the external release detection methods allowed in Section 280.43(e) and (f) is operating in accordance with the requirements in Section 280.43 at the time of closure, and indicates no release has occurred.

(b) If contaminated soils, contaminated ground water, or free product as a liquid or vapor is discovered under paragraph (a) of this section, or by any other manner, owners and operators must begin corrective action in accordance with Subpart F.

PLEASE RETURN TO:

Underground Storage Tank Section
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Commissioner: Michael D. Jarrett Board: Henry S. Jordan MD, Chairman John B. Pate, MD, Vice Chairman William E. Applegate, III, Secretary
Toney Graham, Jr., MD John H. Burriss Richard E. Jabbour, DDS Curtis B. Spivey, Jr.

2600 Bull Street Columbia, South Carolina 29201

1cm

Fast Fare
SC 576
Hwys 28 & 32
McCormick

CROWN

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (410) 539-7400

November 17, 1992

Law Engineering
Joel Padget

Ms. Kathy Milasnovich
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: Transfer of Ownership of UST's

Dear Ms. Milasnovich:

Enclosed are the original Transfer of Ownership forms, copies of the Bill of Sale for underground storage tanks, and a copy of the Transfer Assessment completed by Carolina Geological Consultants (dated 9/8/92). The tanks (and property) for the below locations were sold on October 13, 1992.

SC-563	ID# N-30-NO-05671	Preparing EAP for submittal
SC-573	ID# N-01-NO-00025	Report indicates "clean" site
SC-574	ID# N-01-NO-00024	Preparing EAP for submittal
SC-576	ID# N-35-NO-06443	Site is SUPERB approved, Law Engineering is the environmental contractor

The transfer assessments for SC-563 and SC-574 have been forwarded to Mr. Stan Clark for review (see courtesy copy of letter). Any contamination found at the time of transfer remains the responsibility of Crown Central Petroleum/Fast Fare.

Please review this material at your earliest convenience and let me know when the transfer has been completed. If you have any questions, please do not hesitate to call me at (410) 659-4715.

Sincerely,

Donna J. Rogers

Donna J. Rogers
Environmental Assistant

dr

Enclosures

cc: C. R. Zdunek

n:\sc\general\Transfr2.LCF

RECEIVED
NOV 20 1992
Ground Water Protection
Division

INTER-OFFICE MEMORANDUM

TO: J. A. Bright (1) ✓ M. P. Malone **DATE:** October 21, 1992
C. R. Carpenter C. F. Mattutat (3)
V. A. Cooper K. M. Melton
C. W. Ford M. L. O'Connell (4)
P. M. Koenig (2) J. L. Ries
H. L. Loftis R. J. Sanders

RECEIVED
OCT 21 1992
ENVIRONMENTAL COMPLIANCE

SUBJECT: Greenwood SC Divestitures
Phase 2
SC-563, 573, 574 & 576

This is to advise that the above locations were transferred to Li'l Cricket Food Stores, Inc., at settlement held October 14, 1992.

Underground tanks, equipment, merchandise and gasoline inventory was also transferred by Bill of Sale. Fast Fare is responsible for any environmental remediation.

Beer and Wine License Agreement entered into permitting Li'l Cricket to operate under Fast Fare's Licenses, until November 24, 1992.

Kindly note your records accordingly.

C. R. Zdunek

CRZ:ch

(1) Copies of Bills of Sale for U.G. tanks, along with completed UG Storage Tank Transfer of Ownership forms are attached for your handling with SCDHEC.

(2) Audit results for merchandise and gasoline inventory were previously forwarded to you for invoicing.

(3) Copies of Closing Statements previously forwarded. Kindly forward 1992 tax bills to Real Estate upon receipt.

(4) Copies of Closing Statements previously forwarded. Copies of Bills of Sale for equipment, merchandise, gasoline and underground tanks also attached. As previously advised, the fee locations are part of a tax deferred exchange and proceeds are being held by First Exchange Corp.

CROWN

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (301) 539-7400

October 15, 1992

Mr. Stan Clark
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: **Suspected Release**

SC-05	**ID# N-40-NO-07687**
SC-527	**ID# N-36-NO-06545**
SC-562	**ID# N-42-NO-08460**
SC-563	**ID# N-30-NO-05671**
SC-574	**ID# N-01-NO-00024**
SC-582	**ID# N-24-NO-04726**
SC-622	**ID# P-40-NO-09978**
SC-642	**ID# P-40-NO-10233**

Dear Mr. Clark:

Please consider this letter as the twenty (20) day notification in accordance with the federal and state requirements, 40 CFR Subpart F, Part 280.60, 280.61, and 280.62.

40 CFR Part 280.61 - Initial Response

Report of a suspected release was made to your office on October 15, 1992 as discovered after performing a "Transfer of Ownership Assessment". No fire or safety hazards were detected at the site.

40 CFR Part 280.62 - Initial Abatement Measures and Site Check

1. The four (4) leak detection monitor wells at each above site were checked with an OVA device for the presence of contamination.

2. A groundwater sample was obtained from the worse case "OVA reading" well and submitted to a laboratory for subsequent analyses.

3. Groundwater contamination has been confirmed.

4. Carolina Geological Consultants has been contracted by Crown to prepare an Expanded Assessment Plan (EAP) for submittal to your office for SUPERB approval.

If I can provide any further information, please do not hesitate to call me at (410) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

Enclosures
Carolina Geological Reports
dated September 8, 1992

cc: Caro. Geo.
J. G. Woody
C. R. Zdunek

n:\sc\general\20day.let

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Law Engineering
720 Gracern Rd, Suite 132
Columbia, SC 29221
Attn: Bryan Shane

Re: Crown Station #SC-576
GWPD Site #06443
McCormick County

for the construction of 3 monitoring/recovery wells designated RW-1 through RW-3 in accordance with the locations and construction details submitted in the Amended Cost Proposal received December 3, 1992. The wells shall be constructed in an appropriate manner allowing for the screened portion to be positioned across the water table (except for the deep well) for the purpose of monitoring and recovering ground-water contamination due to hydrocarbons.

Conditions: The location (latitude and longitude) and actual construction details for each well should must be submitted with the final report. Please contact the Upper Savannah District EQC Office (803-223-0333) at least 48 hours prior to well installation. In addition, if the presence of any free product or dissolved hydrocarbon constituents are detected, then this must be reported to the SCDHEC in accordance with Section 280.50 [a] of the South Carolina Underground Storage Tank Control Regulations R.61-92.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the SCDHEC Well Standards and Regulations R.61-71.

Date of issue: December 11, 1992

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.12

cc: Evelyn Lynge, Upper Savannah District EQC
Matthew Gilmore, Crown Central Petroleum

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

December 11, 1992

Mr. Matthew E. Gilmore
Crown Central Petroleum
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Re: Crown Station #SC-576
GWPD Site #06443
Law Engineering Cost Proposal Amendment submitted December 3, 1992
McCormick County

Dear Mr. Gilmore:

Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Amendment submitted by Law Engineering on December 3, 1992. This amendment to **CP #0175** requests funding for a total fluids pump-type free product recovery system. Per a meeting with Bryan Shane of Law Engineering and Brian Chew of Law Environmental, a decision was made to install this type of system in lieu of a skimmer pump-type free product recovery system at the Crown Station #SC-576 site. The SCDHEC and Law Engineering have concurred that a total fluids pump-type system would be a more time- and cost-effective approach to free product recovery at the site.

Accordingly, this office has approved the following changes to CP #0175:

- $51336.25 more for the program task EAP Implementation; this amount reflects deletion of $14796.25 for a skimmer pump-type free product recovery system and related costs, and addition of $66132.50 for a total fluids pump-type free product recovery system and related costs.

- $1110.00 less for the program task Small Volume Disposal; this amount reflects deletion of $1810.00 for free product transport and disposal by Alternate Energy Resources of Augusta, GA, and addition of $700.00 for free product transport and disposal by James Waste Oil Services of Charlotte, NC.

recycled paper

The total fluid pump-type free product recovery system will require the installation of three permanent recovery (4-inch) wells at the site. Therefore, monitoring well approval for these wells has been issued to the consultant, and a copy of the approval form is enclosed for your records.

The amended Cost Proposal has been approved for a total of **$114886.75**, and will be kept on file such that direct billing can begin. Please note that invoices to the SCDHEC for analytical charges, wastewater and soil disposal, miscellaneous and capital items, shipping, and rental equipment should be accompanied by supportive documentation (receipts, weight tickets, vendor rate sheets) for payment. Serial numbers should be supplied for company-owned rental equipment.

<u>This Department reserves the authority to pay only for work performed and/or technically justified. Also, this Department will seek cost recovery where appropriate. Approval of this work plan does not, in any way, acknowledge Department concurrence that all elements included therein will be necessary at this site.</u>

On all correspondence concerning this site, please reference GWPD Site #06443. Should you have any questions on any of the above, feel free to call me at (803) 734-5369.

Sincerely,

Joel P. Padgett, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

06443.11

Enclosures: Monitoring well approval

cc: Evelyn Lynge, Upper Savannah District EQC
Finance and Data Management Section, GWPD
Bryan Shane, Law Engineering
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

H

November 18, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443
EAP Implementation
McCormick County

Dear Ms. Lynch:

Our records indicate that on August 10, 1992, the SCDHEC issued approval to Law Engineering for the proposed EAP, CP, and an automated free product recovery system for the referenced facility. To date, however, this office has not received any indication that the plan has been implemented. While it is understood that there has been a change of project managers for the site, the severity of contamination dictates that implementation proceed as soon as possible. This need for action is underscored by the apparent inadequacy of bailing as a means to remove the free product from the site.

Please begin implementation of the plan within 15 working days of receipt of this correspondence or submit a reasonable explanation to the SCDHEC as to why the plan cannot be implemented. Until this issue is resolved, further requests for SUPERB payment for free product bailing for the site will not be processed.

Should you have any questions or further information concerning this correspondence, feel free to call me at (803) 734-5369.

Sincerely,

Joel P. Padgett, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JPP/jpp
06443.10

recycled paper

cc: Evelyn Lynge, Upper Savannah District EQC
Matthew Gilmore, Crown Central Petroleum
One North Charles Street
P.O. Box 1168
Baltimore, MD 21203

No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

GW 712

2. Payee	3. Vendor No.	4. Cost Center Title
law engineering, inc. 720 GRACERN ROAD, SUITE 132 Address PO BOX 21879 Street Address COLUMBIA, SC 29221 City State Zip		Ground-Water Protection

5. Dates	6. Description	7. Amounts
11-02-92	Reimbursement through contractor payment of expenses incurred in remediation of release from underground storage tanks as provided under Section 44-2-130 SC Code of Laws (SUPERB Act).	2084.00
	CROWN FACILITY SC 576	
	GWPD #06443	
	PCAS #7463	
	MCCORMICK COUNTY	
	8. Total	2084.00

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

11-02-92 Date

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2 KF	3-5 T Code	6-10 Voucher No	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	38-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	Net
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amt
P 2	[redacted]	[redacted]	2	4AE10	R040	52140	AE160	2084.00

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52

DHEC 108 (Rev. 3/81)

No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

Gw 705

2. Payee	Law Engineering, Inc.	3. Vendor No.	4. Cost Center Title
Address	720 Gracern Rd., Suite 132 Street Address Columbia, SC 29221 City State Zip		Ground-Water Protection

5. Dates	6. Description	7. Amounts
10-27-92	Reimbursement through contractor payment of expenses	$2,084.00
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC 576	
	GWPD #06443	
	McCormick County	
	Tax I.D. #58-1818906	
	8. Total	$2,084.00

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

10-27-92
Date

James R. Sheran

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2	3-5	6-10	11	12-17	18-22	23-32	39-43	44	45-52	53-57	5
KF	T Code	Voucher No		Document No.	Vendor No.	Invoice No.	Manual Vo.	Tax	Gross Amount	Discount	Net
P 2			1								

KF	T Code	Voucher No.			Cost Center	Fund	Class	Analytical	Am
P 2			2		4AE10	R040	52140	AE160	$2,084.0

1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	52-

DHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

October 21, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443/PCAS #7463
Invoice #39-4412-1622
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$2084.00**. A check will be processed and sent directly to Law Engineering in about three weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803) 734-5369.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.9

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew Gilmore, Crown Central Petroleum
One North Charles Street
P.O. Box 1168
Baltimore, MD 21203

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary

William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

October 16, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443
Invoices #39-4281-1622 and #39-4282-1622
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoices for payment of **$3365.00.** This amount reflects the following adjustments:

- $70.00 less for Staff Engineer (Invoice #39-4282-1622, p.9); The type of work conducted was not specified.
- $187.50 less for Project Manager for telephone conversations with the SCDHEC; This cost is not reimbursable from the SUPERB account.
- $100.00 less for invoice preparation; this cost was paid on Invoice #39-4281-1622.

A check will be processed and sent directly to Law in about three weeks. Should you have questions on any of the above, please contact Joel Padgett at (803) 734-5369.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.8

recycled paper

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew Gilmore, Crown Central Petroleum
One North Charles Street
P.O Box 1168
Baltimore, Maryland 21203

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK PERSONNEL: D. BROWN GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy, Rain DATE: 10-8-92 (Week 24)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.50	23.79	25.45	25.85	22.10
Ground-water Elevation, msl	505.71	505.01	505.92	504.98	507.35
Free Product in Well, in.	51.11	54.92	49.00	48.93	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: *After one hour

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny DATE: 10-13-92 (Week 25)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.50	23.78	25.46	25.90	22.20
Ground-water Elevation, msl	505.71	505.02	505.91	504.93	507.25
Free Product in Well, in.	51.09	54.92	48.97	48.93	0
Free Product Evacuated, gal.	3.00	3.50	4.00	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.00	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, mild DATE: 10-23-92 (Week 26)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.52	23.80	25.47	25.90	22.22
Ground-water Elevation, msl	505.69	505.00	505.90	504.93	507.23
Free Product in Well, in.	51.00	54.90	48.97	48.90	0
Free Product Evacuated, gal.	3.00	3.50	4.00	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.00	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.125	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Partly Cloudy DATE: 10-31-92 (Week 27)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.58	23.83	25.48	25.88	22.25
Ground-water Elevation, msl	505.63	504.97	505.89	504.95	507.20
Free Product in Well, in.	49.95	54.87	48.97	48.90	0
Free Product Evacuated, gal.	3.00	3.50	4.00	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.00	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.00		--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

gal

: No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

GW 572

2. Payee	3. Vendor No.	4. Cost Center Title
Law Engineering, Inc Address P.O. Box 21879 Street Address Columbia, SC 29221 City State Zip		Ground-Water Protection

5. Dates	6. Description	7. Amounts
September 8,92	Reimbursement through contractor payment of expenses incurred in remediation of release from underground storage tanks as provided under Section 44-2-130 SC Code of Laws (SUPERB Act).	$955.77
	East Fare SC-576 PCAS 7463 Site ID# 06443 McCormick County	
	8. Total	$955.77

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

09-08-1992
Date

James R. Shealy

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2	3-5	6-10	11	12-17	18-22	23-32	39-43	44	45-52	53-57	
KF	T Code	Voucher No		Document No.	Vendor No.	Invoice No.	Manual Vo.	Tax	Gross Amount	Discount	Ne
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	An
P 2			2	4AE10	R040	52140	AE160	955.7

1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	5.

DHEC 108 (Rev. 3/81)

No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER GW551

2. Payee	Law Engineering, Inc.	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 21879 (Street Address)		Ground-Water Protection I
	Columbia, SC 29221 (City / State / Zip)		

5. Dates	6. Description	7. Amounts
8/27/92	Reimbursement through contractor payment of expenses	$3077.50
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown Facility SC 576 PCAS 7463 Site ID#06443	
	McCormick County Tax ID#58-1818906	
	8. Total	$3077.50

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

8/27/92 (Date) — David R. Sherman

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2	3-5	6-10	11	12-17	18-22	23-32	39-43	44	45-52	53-57	5
KF	T Code	Voucher No		Document No	Vendor No.	Invoice No.	Manual Vo.	Tax	Gross Amount	Discount	Net
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amc
P 2	[redacted]	[redacted]	2 [redacted]	4AE10	R040	52140	AE160	3077.50

1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	52-

DHEC 108 (Rev. 3/81)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy, hot DATE: 8-7-92 (Week 15)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.78	23.86	25.48	25.91	22.15
Ground-water Elevation, msl	505.43	504.94	505.89	504.92	507.30
Free Product in Well, in.	49.14	55.02	48.95	48.78	0
Free Product Evacuated, gal.	3.00	3.75	4.13	2.0	—
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	—
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.13	—
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

Invoice # 39-4281-1622

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Rain DATE: 8-14-92 (Week 16)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.83	23.81	25.50	25.95	22.20
Ground-water Elevation, msl	505.38	504.99	505.87	504.88	507.25
Free Product in Well, in.	49.08	54.95	48.86	48.72	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	---
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy DATE: 8-21-92 (Week 17)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.80	23.79	25.49	25.96	22.18
Ground-water Elevation, msl	505.41	505.01	505.88	504.87	507.27
Free Product in Well, in.	49.07	54.93	48.86	48.70	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	---
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny DATE: 8-26-92 (Week 18)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.81	23.79	25.50	25.96	22.19
Ground-water Elevation, msl	505.40	505.01	505.87	504.87	507.26
Free Product in Well, in.	49.05	54.91	48.85	48.70	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.125	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny DATE: 8-28-92 (Week 19)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.79	23.80	25.50	25.97	22.20
Ground-water Elevation, msl	505.42	505.00	505.87	504.86	507.25
Free Product in Well, in.	49.05	54.90	48.85	48.71	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.125	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny DATE: 9-11-92 (Week 20)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.49	23.77	25.45	25.90	22.18
Ground-water Elevation, msl	505.72	505.03	505.92	504.93	507.27
Free Product in Well, in.	51.10	54.92	48.99	48.93	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	-
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	-
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

Inv # 39-4412-1622
9/11/92 - 9/22/92

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, hot DATE: 9-17-92 (Week 21)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.45	23.75	25.41	25.86	22.16
Ground-water Elevation, msl	505.76	505.05	505.96	504.97	507.29
Free Product in Well, in.	51.19	55.01	48.99	49.06	0
Free Product Evacuated, gal.	3.00	3.75	4.25	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, warm DATE: 9-22-92 (Week 22)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.51	23.80	25.41	25.88	22.20
Ground-water Elevation, msl	505.70	505.00	505.96	504.95	507.25
Free Product in Well, in.	51.12	54.95	48.98	48.95	0
Free Product Evacuated, gal.	3.00	3.75	4.125	2.0	0
Stabilized Free Product, in.*	2.75	1.0	6.25	0.75	--
Free Product Evacuated, gal.*	0.75	0.25	2.25	0.125	--
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour

(4051.std)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

August 27, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443/PCAS #7463
Invoice #39-3928-0684
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$1753.01.** A check will be processed and sent directly to Law Engineering in about three weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803)734-5331.

Sincerely,

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.7

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew Gilmore, Crown Central Petroleum
One North Charles Street
P.O. Box 1168
Baltimore, MD 21203

recycled paper

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK PERSONNEL: D. BROWN GWPD ID#: 06443

WEATHER CONDITIONS: sunny, warm DATE: 4-17-92 (Week 1)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.3	23.55	20.3	25.43	21.3
Ground-water Elevation, msl	505.91	505.25	511.07	505.40	508.15
Free Product in Well, in.	420.8	255.9	538.9	385.5	0
Free Product Evacuated, gal.	5.75	3.5	6.0	5.0	0
Evacuation Method	Teflon Baller →				NA

COMMENTS: Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

Inv # 39-3928-0684
4/20/92 - 5/1/92

Received
May 18, 1992
GWPD
RSM

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK PERSONNEL: D. BROWN GWPD ID#: 05443

WEATHER CONDITIONS: sunny, hot DATE: 4-24-92 (Week 2)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24	23.46	24.03	24.12	21.13
Ground-water Elevation, msl	506.21	505.34	507.34	506.71	508.32
Free Product in Well, in.	295	184	295	221	0
Free Product Evacuated, gal.	4	2.5	4	3	0
Stabilized Free Product, in.*	4	2	3	1	–
Free Product Evacuated, gal.*	0.75	0.25	0.75	.05	–
Evacuation Method	Teflon Baller				NA

COMMENTS: * After one hour.
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

05. 12. 92 10:37AM *LAW ENGINEERING P04

05-12-92 10:44AM P004 #43 FROM LAW/ENGINEERING 8037501303 R=95%

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK PERSONNEL: D. BROWN GWPD ID#: 06443

WEATHER CONDITIONS: sunny, hot DATE: 5-1-92 (Week 3)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24	23.78	24.33	24.73	21.19
Ground-water Elevation, msl	506.21	505.02	507.04	506.10	508.26
Free Product in Well, in.	238.72	165.96	368.60	110.84	0
Free Product Evacuated, gal.	3.25	2.25	5.0	1.5	0
Stabilized Free Product, in.*	4	2	7	1	-
Free Product Evacuated, gal.*	0.5	0.25	2.25	0.125	-
Evacuation Method	Teflon Bailer →				NA

COMMENTS: * After one hour.
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

August 27, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Station #SC 576
GWPD Site #06443/PCAS #7463
Invoice #39-4019-0684
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$955.77.** A check will be processed and sent directly to Law Engineering in about three weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803) 734-5331.

Sincerely,

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.5

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew E. Gilmore, Crown Central Petroleum
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

recycled paper

Joel : No.

S. C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL GW 577

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

2. Payee / Address	3. Vendor No.	4. Cost Center Title
Law Engineering, Inc. 720 Gracern Road, Suite 132 P.O. Box 21879 (Street Address) Columbia, SC 29221 (City / State / Zip)		Ground-Water Protection

5. Dates	6. Description	7. Amounts
September 8, 92	Reimbursement through contractor payment of expenses incurred in remediation of release from underground storage tanks as provided under Section 44-2-130 SC Code of Laws (SUPERB Act).	$1,753.01
	Crown Facility SC-576 PCAS 7463 Site ID# 06443	
	McCormick County Tax ID# 58-1818906	
	8. Total	$1,753.01

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

Sept. 8, 1992 (Date) — Chris P. Sheridan

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No.	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	Net
P 2			1								

KF	T Code	Voucher No.		Cost Center	Fund	Class	Analytical	Amt
P 2	[redacted]	[redacted]	2	4AE10	R040	52140	AE160	1,753.0

1-2	3-5	6-10	11	12-16	17-20	21-25	26-35	52

DHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

August 24, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Facility SC 576
GWPD Site #06443/PCAS #7463
Invoice #39-4189-0684
McCormick County

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$3077.50.** A check will be processed and sent directly to Law Engineering in about three weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803)734-5331.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.6

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew Gilmore, Crown Central Petroleum

recycled paper

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: _____ DATE: 7-1-92 (Week 10)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	25.50	24.61	25.72	26.48	22.12
Ground-water Elevation, msl	504.71	504.19	505.65	504.35	507.33
Free Product in Well, in.	51.92	57.48	51.04	49.10	0
Free Product Evacuated, gal.	3.75	4.00	4.5	2.0	0
Stabilized Free Product, in.*	4	1	6.75	1	---
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

Inv # 39-4189-0684
7/1/92 - 7/29/92

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, hot DATE: 7-9-92 (Week 11)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.92	24.02	25.50	26.00	22.12
Ground-water Elevation, msl	505.29	504.78	505.87	504.83	507.33
Free Product in Well, in.	49.32	55.29	49.10	48.92	0
Free Product Evacuated, gal.	3.25	3.75	4.25	2.0	0
Stabilized Free Product, in.*	3.25	1.0	6.75	1	---
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy, hot DATE: 7-16-92 (Week 12)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.89	23.93	25.55	26.02	22.22
Ground-water Elevation, msl	505.32	504.87	505.82	504.81	507.23
Free Product in Well, in.	49.28	55.19	49.01	48.85	0
Free Product Evacuated, gal.	3.00	3.75	4.25	2.0	0
Stabilized Free Product, in.*	3.00	1.0	6.50	0.75	---
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy, warm DATE: 7-22-92 (Week 13)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	25.01	24.12	25.48	25.95	22.10
Ground-water Elevation, msl	505.20	504.68	505.89	504.88	507.35
Free Product in Well, in.	49.30	55.27	49.09	48.88	0
Free Product Evacuated, gal.	3.25	3.75	4.25	2.0	0
Stabilized Free Product, in.*	3.25	1.0	6.75	1	—
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	—
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy, hot DATE: 7-29-92 (Week 14)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	25.00	24.06	25.49	26.07	22.10
Ground-water Elevation, msl	505.21	504.74	505.88	504.76	507.35
Free Product in Well, in.	49.12	53.10	48.50	47.23	0
Free Product Evacuated, gal.	3.00	3.25	4.125	1.75	0
Stabilized Free Product, in.*	2.75	0.75	6.25	0.75	—
Free Product Evacuated, gal.*	0.75	0.25	2.0	0.125	—
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark colored free product in MW-1
Light colored free product in MW-2, MW-4, MW-5

(4051.std)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

August 20, 1992

Ms. Merril O'Connell
Crown Central Petroleum Corp.
P.O. Box 1168
Baltimore, MD 21203

Re: Crown Facility SC 576
GWPD Site #06443/PCAS #7463
Invoice #9111-306
McCormick County

Dear Ms. O'Connell:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$716.63.** The correct original amount of the invoice is $1505.77. Adjustments of $789.54 to this amount are as follows:

For Soil Removal:

- $2.87 less for company truck mileage; the requested rate exceeds the maximum allowed by the SCDHEC ($.43/mi).

- $66.67 less for dry van rental; no vendor rate sheets and/or receipts were enclosed with the invoice. These supporting documents are required for rental cost reimbursement.

For Soil Treatment/Disposal:

- $720.00 less for disposal of containerized soil; no disposal manifests and weigh bills and/or receipts were enclosed with the invoice. These supporting documents are required for soil disposal cost reimbursement.

A check will be processed and sent directly to Crown in about three weeks. Should you have questions on any of the above, please contact Joel Padgett at (803)734-5331.

recycled paper

Sincerely,

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
06443.4inv

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD

1. No.

S. C. DEP...MENT OF HEALTH AND ENVIRONMENTAL CONTROL

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

8 GW412

2. Payee	3. Vendor No.	4. Cost Center Title
Crown Central Petroleum Corp. Address: P.O. Box 1168 Street Address BAltimore, MD 21203 City State Zip		Ground-Water Protection Di

5. Dates	6. Description	7. Amounts
8/21/92	Reimbursement of expenses incurred in remediation of releases from underground storage tanks as provided under Section 44-2-130 SC Code of Laws (SUPERB Act).	$716.63
	Crown Facility SC 576 SIte ID# 06443 PCAS 7463	
	McCormick County Tax ID# 52-0550-682	
	8. Total	$716.63

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

8/21/92
Date

Signature

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2 KF	3-5 T Code	6-10 Voucher No.	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58-65 Net Amo
A P 2			1								

KF	T Code	Voucher No			Cost Center	Fund	Class	Analytical	Amount
3 P 2	[illegible]	[illegible]	2	[illegible]	4AE10	R040	52140	AE160	716.63

1-2 | 3-5 | 6-10 | 11 | 12-16 | 17-20 | 21-25 | 26-35 | 52-59

DHEC 108 (Rev. 3/81)

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (410) 539-7400

August 12, 1992

Mr. Joel Padgett
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RECEIVED
AUG 17 1992
Groundwater Protection
Division

RE: SC-576
201 Hwy. 28 & 32
McCormick County
McCormick, SC 29835
GWPD# 064433

UST System Tightness Test

Dear Mr. Padgett:

As a followup to my letter dated July 23, 1992, enclosed is a copy of the most recent tank tightness test results. As can be seen, all systems passed the test. Also enclosed is a copy of the most recent groundwater monitoring data and SUPERB invoice prepared by Law Engineering, Inc.

If you have any questions, please do not hesitate to call me at (410) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

d:\sc\576\tanktst2.let

Carolina Testing, Inc.

August 4, 1992

Mr. Jim Woody
Crown Central Petroleum Corp.
7720 Mount Holly Rd.
Charlotte, NC 28130

RE: Fast Fare #SC576 GWPD # 06443
HWY 28
McCormick, SC
Tank & Line Test Results
Date of Test: July 31, 1992

Dear MR. Woody:

Volumetric tank integrity tests were performed on the storage tanks listed below using the Leak Computer (Acutest Method). Tests were performed in accordance with the precision test requirement of NFPA-329-87. The criteria for acceptable tank integrity allowed by this test procedure is based upon a leak detection limit of 0.05 gallons per hour and consideration of the other variable factors.

The results of the tests are given below and indicate whether the tank systems passed or failed the integrity criteria. Product lines are reported also. Included is the computer printout of the test data, indicating the average leak rate and confidence level as shown at the end of each strip chart. This information is stored in a file for 12 months if future verification is needed to confirm the tank integrity at the time of the test. All tanks and lines passed at the time of testing.

TANK TEST RESULTS

Grade	Tank Size (Gals)	Calculated Leak Rate (gph)	Tank & Piping
NL Plus	8,000	.02	Pass
No Lead	8,000	.00	Pass
Premium	8,000	.01	Pass

LINE TEST RESULTS

Product	Test Duration	Test Pressure	Calculated Leak Rate (gph)	Pass/ Fail
NL Plus	30 mins.	10 psig	0.0030	Pass
No Lead	30 mins.	10 psig	0.0010	Pass
Premium	30 mins.	10 psig	0.0015	Pass

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

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Promoting Health, Protecting the Environment

August 10, 1992

Ms. Carrie L. Lynch
Law Engineering, Inc.
720 Gracern Road, Suite 132
P.O. Box 21879
Columbia, SC 29221

Re: Crown Station #SC 576
GWPD Site #06443/PCAS #7463
Invoice #39-4111-0684
McCormick, SC

Dear Ms. Lynch:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed and approved the referenced Invoice for payment of **$1958.00.** A check will be processed and sent directly to Law Engineering in about three weeks.

Should you have questions on any of the above, please contact Joel Padgett at (803)734-5331.

Sincerely,

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp
INV06443

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Matthew Gillmore, Crown Central Petroleum

recycled paper

July 29, 1992

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

Mr. Joel Padgett
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29210

RECEIVED
AUG 03 1992
Groundwater Protection
Division

Subject: Report of Inflow Permeability Results
Crown Station S.C. - 576
GWPD Site ID # 06443
Law Engineering Project No. 499-2-4051-02

Dear Mr. Padgett:

As requested, Law Engineering has completed an Inflow Permeability Test in a monitoring well to assist in evaluating the need for an automated Free Product Recovery System at the referenced site. This report describes our test procedures and results.

An inflow permeability test was performed in monitoring well MW-2 to estimate the hydraulic conductivity of the formation materials exposed to the screened interval at the monitoring well location. Hydraulic conductivity is a constant of proportionality relating to the ease with which a fluid passes through a porous medium.

The field procedures performed to calculate the hydraulic conductivity included the following tasks: (1) measure the depth to the ground water; (2) remove water from the borehole by bailing; and (3) measure the ground-water recovery rate.

The hydraulic conductivity was calculated by computer using techniques described in NAVFAC Soil Mechanics Design Manual 7.1 May, 1982, Condition A. The computer calculations are attached.

Based on the field data collected from MW-2, the estimated hydraulic conductivity at the site is 6.2 x 10-4 centimeters per second (cm/sec).

If you have any questions, please feel free to contact us at 798-1200.

Inv # 39-4111-0684

Sincerely,

LAW ENGINEERING, INC.

Carrie L. Lynch
Project Engineer

RECEIVED
AUG 03 1992
Groundwater Protection
Division

Attachment

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

24.93 =Initial Height [redacted] MW-2 TYPE-II

Time (Min)	Depth (ft)	Delta H	Delta HT/ln(dht/dh Delta H	
0	31.45	6.52		
0.5	30.32	5.39	0.826687	-0.19032
1	29	4.07	0.624233	-0.47123
2	28.44	3.51	0.538343	-0.61925
2.5	28.01	3.08	0.472392	-0.74994
3	27.59	2.66	0.407975	-0.89654
4	27.45	2.52	0.386503	-0.95061
5	27.23	2.3	0.352760	-1.04196
5.5	27	2.07	0.317484	-1.14732
6	26.76	1.83	0.280674	-1.27055

Regression Output:

Constant	-0.27052
Std Err of Y Est	0.079019
R Squared	0.953769
No. of Observations	9
Degrees of Freedom	7
X Coefficient(s)	-0.16734
Std Err of Coef.	0.013924

D=	4.17
R=	0.42
R/D=	0.100719
S=	3
Non-Dim=	0.145978

T		H	K	
0.5	-0.35419	0.701740	4.575347	1.22E-03 ft/min
4	-0.93988	0.390672	2.547187	6.18E-04 cm/sec

Wet screen depth

MW-1 $29 - 22.5 = 6.5$

MW-2 $28 - 22.3 = 5.7$

MW-4 $27.9 - 22.9 = 5.0$

MW-5 $30 - 22.8 = 7.2$

Wet screen area

MW-1 $2\pi rh = (2)(3.1416)(1)(78)$
$= 490\ in^2 = 37.7\ ft^2$

MW-2 $(2)(3.1416)(68.4)$
$= 430\ in^2 = 33.1\ ft^2$

MW-3 $(2)(3.1416)(60)$
$= 377\ in^2 = 29\ ft^2$

MW-4 $(2)(3.1416)(86.4)$
$= 543\ in^2 = 41.8\ ft^2$

Hydraulic Conductivity

6.2×10^{-4} cm/sec

$.00062$ cm/sec $= \frac{x}{1}$ $\frac{21200\ gal/day/ft^2}{}$

$x = 13.14\ gal/day/ft^2$

MW-1 $(13.14)(37.7) = 495\ gal/day$
$495/24 = 20.6\ gal/hr$

MW-2 $(13.14)(33.1) = 434.9\ gal/day$
$434.9/24 = 18.1\ gal/hr$

MW-3 $(13.14)(29) = 381.1\ gal/day$
$381.1/24 = 15.9\ gal/hr$

MW-4 $(13.14)(41.8) = 549.4\ gal/day$
$549.4/24 = 22.9\ gal/hr$

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN **PROJECT NAME:** CROWN FAST FARE **JOB NO.:** 499-2-4051-02

LOCATION: McCORMICK, SC **PERSONNEL:** D. Brown **GWPD ID#:** 06443

WEATHER CONDITIONS: Partly cloudy, humid **DATE:** 6-8-92 (Week 6)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	23.97	23.78	24.64	24.74	21.50
Ground-water Elevation, msl	506.24	505.02	506.73	506.09	507.95
Free Product in Well, in.	19.76	14.20	19.23	9.40	0
Free Product Evacuated, gal.	3.50	2.0	3.75	1.25	0
Stabilized Free Product, in.*	2.75	1	5.0	0.5	---
Free Product Evacuated, gal.*	0.5	0.25	3.0	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

Inv # 39-4111-0684
6/8/92 - 6/25/92

(4051:std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Cloudy DATE: 6-15-92 (Week 7)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	25.44	24.69	25.72	26.57	22.00
Ground-water Elevation, msl	504.77	504.11	505.65	504.26	507.45
Free Product in Well, in.	51.89	57.48	50.64	48.72	0
Free Product Evacuated, gal.	3.75	4.00	4.5	2.0	0
Stabilized Free Product, in.*	4	1	7	1	---
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	---
Evacuation Method	Teflon Baller---------->				NA

COMMENTS: * After one hour
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, hot DATE: 6-19-92 (Week 8)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	25.21	24.82	25.56	26.00	22.32
Ground-water Elevation, msl	505.0	503.98	505.81	504.83	507.13
Free Product in Well, in.	52.01	57.31	49.05	49.10	0
Free Product Evacuated, gal.	3.5	4.00	4.25	2.0	0
Stabilized Free Product, in.*	3.5	1.0	6.75	1	---
Free Product Evacuated, gal.*	0.75	0.25	2.5	0.125	—
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

(4051.std)

GROUND-WATER MONITORING WELL FIELD DATA

CLIENT: CROWN PROJECT NAME: CROWN FAST FARE JOB NO.: 499-2-4051-02

LOCATION: McCORMICK, SC PERSONNEL: D. Brown GWPD ID#: 06443

WEATHER CONDITIONS: Sunny, hot DATE: 6-25-92 (Week 9)

Well Description	MW-1	MW-2	MW-4	MW-5	MW-6
Well Diameter, in.	2	2	2	2	2
Well Depth, ft.	30.4	31.4	29.0	32.0	57.0
Well Elevation, msl	530.21	528.80	531.37	530.83	529.45
Depth to Water, ft.	24.92	24.56	25.72	25.89	22.12
Ground-water Elevation, msl	505.29	504.24	505.65	504.94	507.33
Free Product in Well, in.	52.32	57.25	49.25	48.95	0
Free Product Evacuated, gal.	3.5	4.00	4.00	2.0	0
Stabilized Free Product, in.*	3.5	1.0	6.75	1	---
Free Product Evacuated, gal.*	0.75	0.25	2.75	0.125	---
Evacuation Method	Teflon Bailer---------->				NA

COMMENTS: * After one hour
Dark Colored Free Product in MW-1.
Light Colored Free Product in MW-2, MW-4, and MW-5.

(4051.std)

LAW ENGINEERING - COLUMBIA, SOUTH CAROLINA

1992 FEE SCHEDULE

ENVIRONMENTAL SERVICES

TECHNICAL SERVICES

Charges will be made at the following rates for time spent in administration of projects, consultation or meetings, field inspection, review and evaluation of field and laboratory data, travel time, report preparation and review, etc. Charges will be based on the position level of the individual performing the services. This Fee Schedule is effective through December 31, 1992.

A. PROFESSIONAL PERSONNEL

	Typical Classification	Charge Per Hour
1.	Staff Engineer/Geologist	$ 70.00
2.	Licensed Asbestos Consultant	$ 55.00
3.	Registered Professional Engineer/ Geologist	$ 80.00
4.	Chief Registered Professional Engineer/ Geologist	$ 90.00
5.	Senior Engineer, Senior Hydrogeologist, Corporate Officer	$ 95.00
6.	Certified Industrial Hygienist	$ 125.00
7.	Corporate Engineering Consultant	$ 125.00

B. SUPPORT PERSONNEL

Charges will be made at the following rates for support services. Overtime will be charged at 1.5 times the following rates:

	Typical Classification	Charge Per Hour
1.	Word Processor	$ 30.00
2.	Draftsman	$ 35.00
3.	Technician	$ 40.00
4.	Senior Technician	$ 40.00
5.	Roofing Inspector/Surveyor	$ 45.00
6.	Asbestos Technician	$ 45.00

LAW ENGINEERING

C. EXPENSES

1.	Out of Town Subsistence (per diem)	$ 55.00
2.	Additional Reports	$ 10.00
3.	Automobile Mileage, per mile	$ 0.35
4.	Pick Up Mileage, per mile	$ 0.40
5.	Other Direct Expenses	cost/0.8

D. SUBCONTRACTS

Subcontracted services will be invoiced at our cost divided by 0.8 (unless the cost of these services is billed to and paid directly by our client).

E. SUBSURFACE EXPLORATION, ENVIRONMENTAL DRILLING

1. Mobilization of Personnel and Equipment

a.	Truck-mounted drill rig, including steam cleaner and related equipment	$ 450.00
b.	ATV or marsh buggy equipment	SPECIAL QUOTE

2. Well Installation including well casing, gravel pack annular seal, bentonite/cement grout.

a.	2" PVC well flush joint pipe in a 6-1/4" ID hollow stem auger (HSA) w/ max 10' slotted screen, per linear foot	
1)	0-60 feet	$ 23.00
	plus sampling	$ 11.00
2)	60-120 feet	$ 29.00
	plus sampling	$ 13.00
3)	Over 120 feet	SPECIAL QUOTE
b.	4" PVC well flush joint pipe in a 8-1/4" ID HSA with max. 10' slotted screen, per linear foot	
1)	0-60 feet	$ 34.00
	plus sampling	$ 11.00
2)	60-120 feet	$ 40.00
	plus sampling	$ 13.00
c.	All Type/Class III monitoring well	SPECIAL QUOTE

3. Decontamination and Safety Equipment

a.	Level D, work gloves or Tyvek suit, per new suitup	$ 25.00
b.	Level C, APR's and Tyvek suit, per suitup	$ 50.00
c.	Level B, SCBA, Tyvek suit and gloves, per suitup	$ 100.00
d.	Drilling in levels where APR-SCBA's are required, 1.5 multiple drilling rates	

4. Well Abandonment

a.	2"-4" diameter, per linear foot	$ 10.00
b.	6"-8" diameter, per linear foot	$ 18.00

5. Well Covers

a.	4" square x 5' long	$ 145.00
b.	6" square x 5' long	$ 160.00
	1) Well pads 2'x2'x4"	$ 125.00
	2) Well pads 3'x3'x6"	$ 150.00
c.	8" round x 7-1/2" deep	$ 215.00
d.	12" round x 8" deep	$ 250.00
e.	Protective posts (steel), each	$ 25.00

6. Additional Items

a.	Delay Time Charge, per hour (steam cleaning, clean-up, stand-by, etc.)	$ 110.00
b.	Steam Cleaner, per day	$ 80.00
c.	Generator Rental, per day	$ 70.00
d.	OVA Rental, per day	$ 100.00
e.	Rental Equipment, actual cost/0.8	

F. MONITORING WELL SAMPLING EQUIPMENT AND MATERIALS

1.	Disposable bailer	$ 10.00
2.	Well sampling equipment and materials charge (includes well sampling rope, laboratory soap, distilled water, and isopropanol alcohol rinse), per well	$ 10.00
3.	Sample vials, preservatives, and sample shippers	cost/0.8
4.	55-gallon storage drum	$ 35.00
5.	Manual well sampling pump rental,per day	$ 25.00
6.	Electric water meter rental, per day	$ 25.00
7.	Interface probe rental, per day	$ 50.00
8.	Peristaltic Pump, per day	$ 50.00
9.	pH Meter	$ 30.00
10.	Conductivity Meter	$ 35.00

G. ASBESTOS RELATED SERVICES

1.	Licensed Air Monitoring Professional, including air sampling pumps, slide supplies, and microscope	
a.	per 8-hour week day	$ 360.00
b.	for weekends and holidays, per 8-hour day	$ 468.00
c.	for hours in excess of 8-hour day, per hour	$ 58.50

2. Bulk Sample Analysis, by PLM
(add appropriate rate for collection)·· $ 55.00

3. Air Sample Analysis, by PCM
(add appropriate rate for collection)·· $ 20.00

4. Air Sample Analysis, by TEM
(add appropriate rates for collection, discounts may apply if samples are not "rush" turnaround analysis)····· $ 650.00

H. CHEMISTRY LAB TESTING

1. Hydrocarbon Analyses	Water EPA Method	Water Price	Soil EPA Method	Soil Price
Purgeable Aromatics (BTEX, MTBE, IPE)	602	$115	5030/8020	$143.75
Total Recoverable Petroleum Hydrocarbons (TRPH-IR)	418.1	$ 86.25	9071-418.1	$115
Total Petroleum Hydrocarbons-Vol.(GC) (Gasoline)	LUFT Cal-DHS	$115	LUFT Cal-DHS	$115
Total Petroleum Hydrocarbons-Semi Vol. (GC) (Diesel)	LUFT Cal-DHS	$143.75	LUFT Cal-DHS	$143.75
Oil & Grease (Hydrocarbons)	SM 503A&E	$ 57.50	9071	$69

2. GC Organic Analyses	EPA Method	Charge Per Sample Water	Soil
Purgeable Halocarbons	601	$115	$ -
Purgeable Aromatics	602	$115	$ -
Phenols (Non-derivatized)	604/8080	$201.25	$201.25
Pesticides & PCB's	608/8080	$201.25	$223.25
Polynuclear Aromatic Hydrocarbons	610/8100	$201.25	$201.25
Halogenated Volatile Organics	8010	$ -	$172.50
Aromatic Volatile Organics	8020	$ -	$143.75

GC Multiple Sample Discount: 6-10 samples: 10%
Over 10 samples: 15%

LAW ENGINEERING

3. GC Organic Analysis	Method No.	Charge Per Sample Water	Soil
a. Volatiles	624/8240	$ 258.75	$ 304.75
b. Acid Extractables	625/8270	$ 287.50	$ 327.75
c. Base Neutrals	625/8270	$ 316.25	$ 362.25
d. Priority Pollutant 15 Inorganics		$ 413.70	$ 428.48
e. Priority Pollutant Organics (EPA-CWA)		$1083.50	$1241.10
f. Complete 129 Priority Pollutants (Includes 15 Inorganics)		$1466.25	$1638.75

4. RCRA Hazardous Waste Characterization

a. Toxic Characterizatic Leaching Procedure (TCLP)

Extraction (non-VOC;$167.50 ea)	$ 335
Metals (8 analyses)	$ 335
Pesticides	$ 210
Herbicides	$ 150
Zero-Head Space Extraction (VOC)	$ 300
Volatiles - 8240	$ 300
Base Neutrals/Acid Extractables	$ 630
Total	$2260
Additional metals	$ 40
Volatiles - 8010	$ 120
Volatiles - 8020	$ 120

b. Ignitability $ 50

c. Corrosivity (pH) $ 12

d. Reactivity

Total Available HCN	$120
Total Available H_2S	$120

e. EP Toxicity

Extraction	$170
8 Metals	
1-Point Standard Addition	$335
3-Point Standard Addition, per metal	$120
Pesticides	$210
Herbicides (2,4-D & 2,4,5-TP)	$150

LAW ENGINEERING

5. Metals Analysis	EPA Method	Charge Per Sample
a. Arsenic	7060	$ 40.00
b. Barium	208.2	$ 40.00
c. Cadmium	7131	$ 40.00
d. Chromium	7191	$ 40.00
e. Lead	7421	$ 40.00
f. Mercury	7470(cold vapor)	$ 40.00
g. Selenium	7740	$ 40.00
h. Silver	7761	$ 40.00
i. Nickel	249.2	$ 40.00

6. Water Quality Analyses

Parameter	Price
a. Biochemical Oxygen Demand, BOD_5 (SM 507)	$ 54.00
b. Carbon (Inorganic)	$ 54.00
c. Chemical Oxygen Demand (EPA 410.4)	$ 25.00
d. Cyanide, CN-(total - EPA 335.3)	$ 40.00
e. Oil and Grease (EPA 413.1)	$ 60.00
f. pH (EPA 150.1)	$ 6.00
g. Phenolics (EPA 420.2)	$ 40.00
h. Total Organic Carbon (EPA 415.1)	$ 50.00
i. Total Organic Halides (TOX) (EPA 450.1)	$ 90.00

7. Soil, Sludge or Sediment Analyses

Parameter	Price
a. Chemical Oxygen Demand	$ 25.00
b. Cyanide, CN-(total)	$ 50.00
c. Oil and Grease (Residual) (EPA 9070)	$ 50.00
d. pH (EPA 9045)	$ 15.00
e. Phenolics (EPA 9065)	$ 50.00
f. Sulfide, Total by Distillation and Titration g. (EPA 9030)	$ 50.00
h. Total Organic Carbon (EPA 9060)	$ 75.00
i. Total Organic Halides (TOX) (EPA 9020)	$120.00

I. GENERAL INFORMATION

Equipment damaged by hazardous materials will be repaired at cost to the client if notification of the potential for hazardous material presence has not been made by the client.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Law Engineering
720 Gracern Rd, Suite 132
Columbia, SC 29221
Attn: Carrie L. Lynch

Re: Crown Station #SC-576
GWPD Site #06500/PCAS #7463
McCormick County

for the construction of monitoring wells designated MW-7 through MW-12 in accordance with the locations and construction details submitted in the Expanded Assessment Plan received May 1, 1992. Approval is also granted for the construction of deep well MW-13,, and 2 additional shallow monitoring wells as per the Expanded Assessment Plan approval issued by this office on August 10, 1992. The wells shall be constructed in an appropriate manner allowing for the screened portion to be positioned across the water table (except for the deep well) for the purpose of monitoring groundwater contamination due to hydrocarbons.

Conditions: The location (latitude and longitude) and actual construction details for each well should must be submitted with the final report. Please contact the Upper Savannah District EQC Office (803-223-0333) at least 48 hours prior to well installation. In addition, if the presence of any free product or dissolved hydrocarbon constituents are detected, then this must be reported to the SCDHEC in accordance with Section 280.50 [a] of the South Carolina Underground Storage Tank Control Regulations R.61-92.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the SCDHEC Well Standards and Regulations R.61-71.

Date of issue: August 10, 1992

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jnn/MW.ann

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Ja

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary

Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

August 10, 1992

RECEIVED
AUG 26 1992
Groundwater Protection
Division

Crown Central Petroleum
Attn: Mr. Matthew E. Gilmore
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Re: Crown Station #SC-576
GWPD Site #06443/PCAS #7463
Law Engineering Expanded Assessment Plan and Cost Proposal submitted May 1, 1992
McCormick County

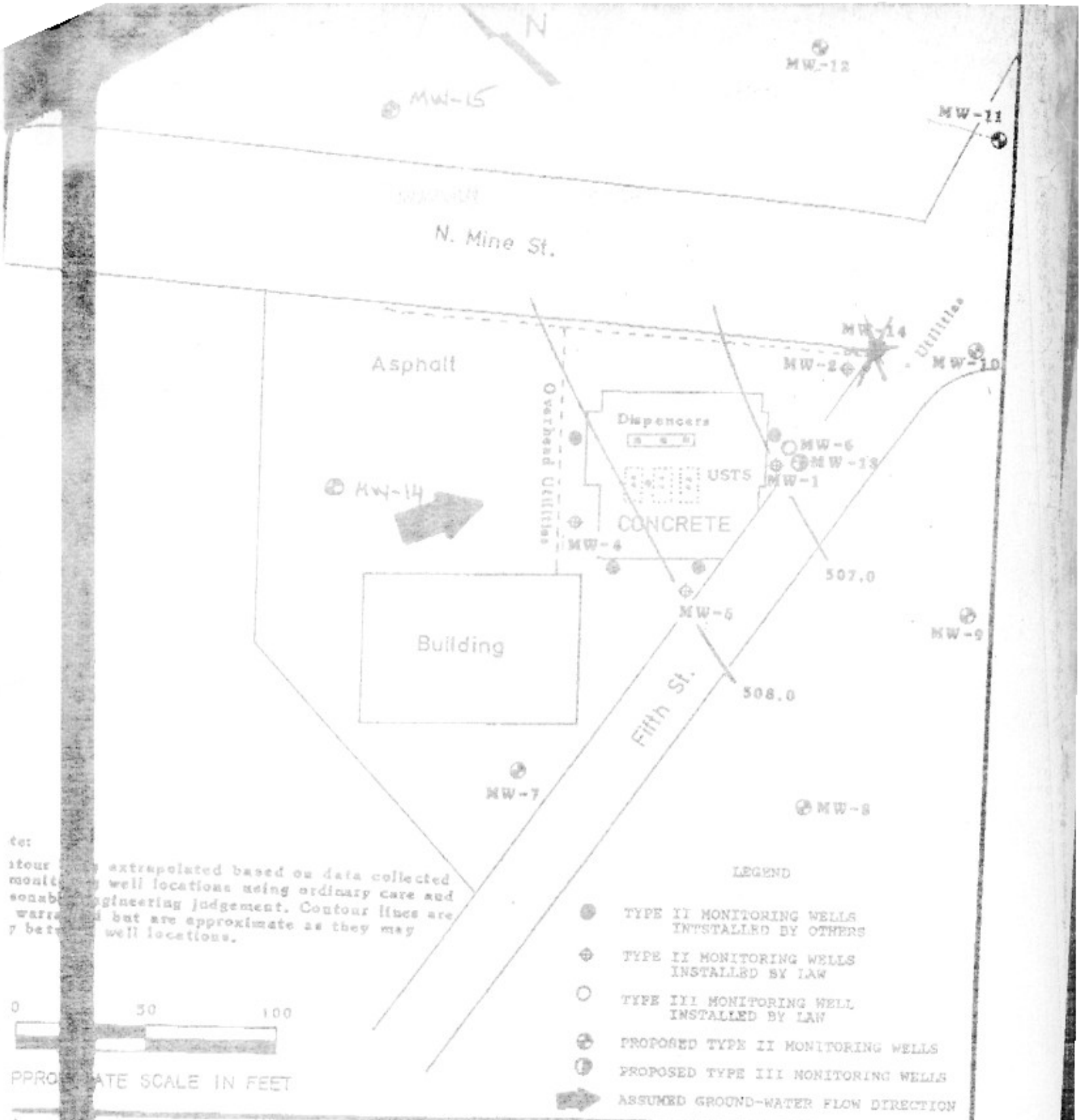
Dear Mr. Gilmore:

The Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Expanded Assessment Plan (EAP) and associated Cost Proposal (CP) prepared by Law Engineering. The EAP is approved with the following recommendations:

- An automated recovery system, as proposed in Law Engineering correspondence to this office dated July 14, 1992, is recommended in lieu of bailing for free product removal. The system should be installed as soon as is feasible upon receipt of this letter.

- Monitoring well approval for a maximum of 8 shallow wells and 1 deep well has been issued to the consultant, and a copy of the approval form is enclosed for your records. This approval encompasses the addition of 2 shallow wells sited to address possible upgradient contamination, northeast and north of the property. Additionally, it is recommended that proposed deep well MW-13 be drilled to a greater depth in lieu of drilling deep well MW-14. MW-13 should be sited proximal to deep well MW-6, and screened at a minimum depth of 75 feet to further define the vertical extent of contamination. It will be necessary to case this well from the surface to at least 55 feet, as contamination was detected at this depth in MW-6.

- The SCDHEC does not consider bailing to be an adequate method of well development. This office recommends the use of alternate development techniques such as surge blocks, air surging, backwashing, and high velocity jetting. A SC Certified Well Driller should be capable of performing one or more of these methods.



te:

itour [illegible] extrapolated based on data collected
monit[illegible] well locations using ordinary care and
eonab[illegible]gineering judgement. Contour lines are
warra[illegible]d but are approximate as they may
y bet[illegible] well locations.

W ENGINEERING, INC. LUMBIA, SOUTH CAROLINA	Site Plan Crown Station S.C.--576 McCormick, South Carolina			
Cro[illegible] Central Petroleum Corporation Baltimore, Maryland 492-1-4051-01	DWN. BY	JRG	2/91	SCALE: As Shown
	CKD. BY	JPK	2/91	DRAWING NO.
	APPR'D			2

As per the referenced

MW approval and Ltr Dated

Aug 10, 1992

1. The 2 additional shallow wells will be MW-14, MW-15 (See enclosed map) They will be N & W of Contamination up gradient, OK?

2. Will kick MW-10, MW-11 off the road

3. Please note different GWPD site # - ON Monitoring well approval and 10 August letter

06500 and 06443

is there a typo?

8/27/92 - Telephone conversations w/ Carrie Lynch & Mike Tidmon 1) & 3) typos acknowl, MW locations approved

JPP

743-4661

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

rd

August 10, 1992

Crown Central Petroleum
Attn: Mr. Matthew E. Gilmore
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Re: Crown Station #SC-576
GWPD Site #06443/PCAS #7463
Law Engineering Expanded Assessment Plan and Cost Proposal submitted May 1, 1992
McCormick County

Dear Mr. Gilmore:

The Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Expanded Assessment Plan (EAP) and associated Cost Proposal (CP) prepared by Law Engineering. The EAP is approved with the following recommendations:

- An automated recovery system, as proposed in Law Engineering correspondence to this office dated July 14, 1992, is recommended in lieu of bailing for free product removal. The system should be installed as soon as is feasible upon receipt of this letter. Verbal approval to continue bailing in interim period given 8/27/92 JPP

- Monitoring well approval for a maximum of 8 shallow wells and 1 deep well has been issued to the consultant, and a copy of the approval form is enclosed for your records. This approval encompasses the addition of 2 shallow wells sited to address possible upgradient contamination ~~northeast~~ northwest and north of the property. Additionally, it is recommended that proposed deep well MW-13 be drilled to a greater depth in lieu of drilling deep well MW-14. MW-13 should be sited proximal to deep well MW-6, and screened at a minimum depth of 75 feet to further define the vertical extent of contamination. It will be necessary to case this well from the surface to at least 55 feet, as contamination was detected at this depth in MW-6. JPP 8/27/92

- The SCDHEC does not consider bailing to be an adequate method of well development. This office recommends the use of alternate development techniques such as surge blocks, air surging, backwashing, and high velocity jetting. A SC Certified Well Driller should be capable of performing one or more of these methods.

recycled paper

- Two interim sampling episodes are not necessary. The SCDHEC recommends an initial sampling episode of the approved wells to be installed under the EAP, followed by a final comprehensive sampling episode of all wells at the site, excluding those wells containing free product. Accordingly, a total of 19 water EPA 602 analyses, including one for the "worst-case" well analysis, have been approved for the 2 sampling episodes.

- Composite analyses of the containerized soil cuttings and wastewater for the purpose of small volume disposal are not necessary. This office considers the split spoon soil sample analysis with the highest levels of contamination (BTEX and TPH) to be representative of the containerized soil cuttings. The "worst-case" well analysis will be accepted as a representative sample of the containerized wastewater.

- The wastewater discharge permitting process should be initiated during EAP implementation. Wherever feasible, this office strongly recommends the Underground Injection Control (UIC) Permit option as a means of reducing offsite discharges. A UIC Permit is typically completed and submitted in conjunction with a Corrective Action Plan (CAP). However, to eliminate possible future delays, this office still recommends that an alternative wastewater disposal option (NPDES or POTW) be pursued during EAP implementation as a backup should the UIC option not work. A UIC Permit Application (3 copies) and either a POTW or NPDES Permit Application (2 copies) should be submitted with the CAP.

Assessment activities at the site can be initiated immediately upon receipt of this letter. In accordance with the implementation schedule provided in the EAP, the Expanded Assessment Report (2 copies) should be submitted on or before **February 10, 1993** with a cost proposal for development of a CAP and implementation of a quarterly monitoring program.

The Cost Proposal has been approved for a total not to exceed **$64660.50** reflecting the following adjustments:

For <u>EAP Implementation</u>:

- $1222.00 <u>more</u> for personnel costs associated with installing 1 net additional well and deepening proposed well MW-13 (p.9-10); this incorporates 1 additional day of well installation ($345.00) and associated per diem ($237.00) for a 3-person drill crew, 8 more hours of well installation supervision for Engineer ($560.00), and 2

additional hours of well sampling for Technician ($80.00).

- $11,200 less for Technician for free product bailing (p.10); this reflects deletion of free product bailing as discussed in the EAP approval recommendations.

- $180 more for rental costs associated with installing 1 net additional well and deepening proposed well MW-13 (p.11); this covers 1 additional day of OVA rental ($100.00) and steam cleaner rental ($80.00).

- $60.00 less for drilling support pickup mileage (p.13); this cost is included in the drill rig mob/demob rate.

- $1680.00 less for Technician pickup mileage (p.13); this reflects deletion of free product bailing as per the EAP approval recommendations.

- $20.00 more for costs associated with drilling 1 net additional well and deepening proposed well MW-13 (p.15); this incorporates the addition of 2 shallow 30-foot wells ($2220.00), 20 feet of depth to MW-13 ($1680), and 4 split spoon samples ($80.00), and the deletion of proposed well MW-14 (-$5040.00).

- $200.00 more for 1 soil EPA 5030 analysis and 1 soil EPA 602 analysis to sample 1 net additional well (p.16).

- $2000.00 less for water EPA 602 analyses (p.16); this reflects the deletion of an interim sampling episode(-16 analyses @ $125.00/analysis) as per the EAP approval recommendations.

- $607.50 less for the analysis handling fee (p.16); a markup on the water EPA 602 analyses has not been approved because the rate for these analyses equal the maximum allowed by the SCDHEC.

- $150.00 less for field equipment for well sampling (p.17); this reflects the deletion of an interim sampling episode (-15 wells @ $10.00/well) as discussed in the EAP approval recommendations. An allowance has been given for sampling the "worst-case" well.

For Permitting:

- $125.00 more for 1 water EPA 601 analysis (p.22); the SCDHEC recommends that EPA 601 be included in the "worst-

case" well analysis.

- $5.00 less for the cost of 1 EPA 405.1 (BOD) analysis (p.22); the SCDHEC allows a maximum rate of $40.00 per analysis.

- $30.75 less for analysis handling fee (p.22); a markup on the water EPA 405.1 (BOD), water EPA 625 (napthalene), and lead analyses has not been approved because the rates for these analyses are maximum.

For Small Volume Disposal:

- $488.75 less for composite analyses of the containerized soil cuttings and wastewater as discussed in the EAP approval recommendations (p.24).

- $2640.00 less for free product transport and disposal (p.25); Carrie Lynch has indicated to me that Law Engineering intends to subcontract with Alternate Energy Resources of Augusta, Georgia for small volume free product disposal. Per a telephone conversation (7/22/92) with Alternate Energy Resources, their current rates for free product transport and disposal are:

  - $2.00/mile for bulk or containerized transport.
  - $.75/gal for bulk disposal.
  - $75/drum for containerized disposal (includes drum disposal).
  - $110.00 lab fee per bulk shipment or shipment of 1-9 drums.
  - $165.00 lab fee per shipment of 10-39 drums.
  - $220.00 lab fee per shipment of >40 drums.
  - No charge for disposal profile.

  The requested rates have been adjusted accordingly, incorporating a 5% markup for transportation and a 15% markup for disposal. Allowance has been given for 100 miles of transport, and for the bulk disposal of 550 gallons of free product.

The adjusted Cost Proposal has been assigned CP #0175, and will be kept on file such that direct billing can begin. Please reference **CP #0175** on all future invoices and pertinent correspondence. An EAP Update form (enclosed) should be submitted with all invoices.

Please note that copies of all receipts, invoices, weight tickets, and vendor rate sheets for analytical charges, miscellaneous and capital items, shipping, and rental equipment should accompany

submittals for payment or reimbursement.

This Department reserves the authority to pay only for work performed and/or technically justified. Also, this Department will seek cost recovery where appropriate. Approval of this work plan does not, in any way, acknowledge Department concurrence that all elements included therein will be necessary at this site.

On all correspondence concerning this site, please reference GWPD Site #05670. Should you have any questions regarding this project, please call me at (803) 734-5331.

Sincerely,

Joel P. Padgett, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

EAP06443MW4254

Enclosures: Monitoring well approval
Expanded Assessment Update form

cc: Evelyn Lynge, Upper Savannah District EQC
Robertha Dorsey, GWPD
Carrie L. Lynch, Law Engineering
consultant file

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Law Engineering
720 Gracern Rd, Suite 132
Columbia, SC 29221
Attn: Carrie L. Lynch

Re: Crown Station #SC-576
GWPD Site #06500/PCAS #7463
McCormick County #06443 JPP 8/27/92

for the construction of monitoring wells designated MW-7 through MW-12 in accordance with the locations and construction details submitted in the Expanded Assessment Plan received May 1, 1992. Approval is also granted for the construction of deep well MW-13, and 2 additional shallow monitoring wells as per the Expanded Assessment Plan approval issued by this office on August 10, 1992. The wells shall be constructed in an appropriate manner allowing for the screened portion to be positioned across the water table (except for the deep well) for the purpose of monitoring ground-water contamination due to hydrocarbons.

Conditions: The location (latitude and longitude) and actual construction details for each well should must be submitted with the final report. Please contact the Upper Savannah District EQC Office (803-223-0333) at least 48 hours prior to well installation. In addition, if the presence of any free product or dissolved hydrocarbon constituents are detected, then this must be reported to the SCDHEC in accordance with Section 280.50 [a] of the South Carolina Underground Storage Tank Control Regulations R.61-92.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the SCDHEC Well Standards and Regulations R.61-71.

Date of issue: August 10, 1992

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/jpp/MW app
0810924254/JPP

cc: Evelyn Lynge, Upper Savannah District EQC
Mr. Matthew E. Gilmore, Crown Central Petroleum

recycled paper

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (410) 539-7400

July 23, 1992

RECEIVED
JUL 27 1992
Groundwater Protection
Division

Mr. Joel Padgett
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: SC-576
201 Hwy. 28 & 32
McCormick County
McCormick, SC 29835
GWPD# 06443

UST System Tightness Test

Dear Mr. Padgett:

Per our telephone conversation today, I have the following comments regarding the November 14, 1991, PTS Tank Test results letter. Crown's Maintenance Engineer confirmed to me that this particular site is equipped with suction dispensers, not pressurized piping. The PTS letter is slightly confusing, however, if the letter is read deleting the statement in parenthesis, it reads "The results of the test are given below and indicate whether the tank(s) with the associated piping passed or failed the integrity criteria." The test levels indicate that both the tanks and suction lines passed this particular test.

Regardless of these results, Crown has scheduled another precision tank and line test to be performed during the last week of July, 1992. These results will be forwarded to you as soon as they become available.

If you have any questions, please do not hesitate to call me at (410) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

cc: J. Woody
C. Lynch, Law

d:\sc\576\tanktest.let

July 14, 1992

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

Mr. Joel Padgett
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29210

Subject: Cost Proposal for Automated Free Product Recovery System
Crown Station S.C.- 576
McCormick, South Carolina
GWPD Site ID # 06443
Law Engineering Project No. 499-2-4051-02

Dear Mr. Padgett:

Per our telephone conversation on July 13, 1992, Law Engineering, on behalf of Crown Central Petroleum Corporation, submits the attached SUPERB Cost Proposal for purchase of an automated free product recovery system at the referenced site.

Based on the large quantities of free product currently being manually evacuated from four of the five wells on a weekly basis, it appears that implementation of an automated system is warranted. As you requested, the most recent weekly data sheets regarding free product removal are enclosed.

We plan to install an SkimRite automated free product skimmer system into the four contaminated wells on site. The capacity of each pump is approximately 120 gallons per day and will be powered by an 1.5 H.P. air compressor and 115 v.a.c with air filtration. The free product will be pumped from each well into a 550-gallon aboveground storage tank on site.

If you have and questions, please feel free to contact us at 798-1200.

Sincerely,

LAW ENGINEERING, INC.

Carrie L. Lynch
Project Engineer

RECEIVED
JUL 16 1992
Groundwater Protection
Division

Enclosures

cc: Mr. Matthew E. Gilmore/Crown Central Petroleum Corporation

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

June 30, 1992

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

South Carolina Department of Health
and Environmental Control
Underground Storage Tank State
Corrective Action Section
2600 Bull Street
Columbia, South Carolina 29201

RECEIVED
JUL 07 1992
Groundwater Protection
Division

Attention: Mr. Read S. Miner
Hydrogeologist

Subject: Expanded Assessment Plan
Crown Station S.C. - 576
Highways 28 and 32
McCormick, South Carolina
GWPD Site ID # 06443
Law Engineering Project No. 499-2-4051-02

Dear Mr. Miner:

As discussed, previous correspondence from the South Carolina Department of Health and Environmental Control was forwarded to our billing address in Atlanta, Georgia. For future reference, payments should continue to be forwarded to our Atlanta, Georgia addressed presented on our invoices, and all correspondence should be submitted to the following address:

Law Engineering, Inc.
Post Office Box 21879
Columbia, South Carolina 29221

Thank you for you cooperation concerning this matter. If you have any questions, please feel free to contact us at (803) 798-1200.

Sincerely,

LAW ENGINEERING, INC.

Carrie L. Lynch
Staff Engineer

CLL:tem

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

May 19, 1992

Crown Central Petroleum Corporation
Attn: Mr. Matt Gilmore
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Re: Crown Facility #SC-576
GWPD Site ID #08466
Invoice #29750
200 North Mine Street
McCormick County

Dear Mr. Gilmore:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced invoice and reimbursement request. This invoice represents the costs Crown Petroleum incurred in 1989 for the installation of leak detection wells at the referenced facility. The Department will be unable to reimburse Crown Petroleum for the installation of these leak detection wells for the following reasons:

1) Costs for installation of leak detection wells are not payable by the SUPERB Fund as pursuant to Part 44-2-130 (D)(2) of the SUPERB Amendments which states that "No person is entitled to direct billing or reimbursement form the SUPERB Account for the costs of repair or replacement of any tank or equipment." Leak detection wells are considered operational equipment for Underground Storage Tanks.

2) The release/leak detection wells <u>do not</u> intersect the water-table, therefore the wells are not usable as monitoring wells for site assessment. <u>If</u> the release/leak detection wells intersected the water table and detected contamination at the time of installation, the cost for installation would be payable. The cost associated with the installation of the release/leak detection wells <u>will not</u> be payable for this site.

Sincerely,

Read S Miner

Read S. Miner, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

recycled paper

RSM/rsm
7463CRWN.TXT

cc: Robertha Dorsey
GWPD

RM : No.

S. C. DEPAR...NT OF HEALTH AND ENVIRONMENTAL CONTROL GW162

DIRECT EXPENDITURE OR PERSONAL SERVICE VOUCHER

2. Payee	Law Engineering	3. Vendor No.	4. Cost Center Title
Address	P.O. Box 102655		Ground-Water Protection Div.
	Street Address Atlanta, Georgia 30368-0655		
	City State Zip		

5. Dates	6. Description	7. Amounts
6-2-92	Reimbursement through contractor payment of expenses	$2,515.00
	incurred in remediation of release from underground storage	
	tanks as provided under Section 44-2-130 SC Code of Laws	
	(SUPERB Act).	
	Crown SC-576, PCAS 7463, Site ID# 06443, McCormick County	
	8. Total	$2,515.00

9. It is hereby certified that the items represented in this voucher were authorized, received, inspected, and accepted, and this amount is approved for payment.

6-2-92 — Date

James R. Sheridan

10. The above amounts are correct.

Signature

Social Security Number

11. Account numbers and amounts to be charged.

1-2 KF	3-5 T Code	6-10 Voucher No	11	12-17 Document No	18-22 Vendor No.	23-32 Invoice No.	39-43 Manual Vo.	44 Tax	45-52 Gross Amount	53-57 Discount	58-65 Net Amount
P 2			1								

KF	T Code	Voucher No			Cost Center	Fund	Class	Analytical	Amount
P 2	[redacted]	[redacted]	2	[redacted]	4AE10	R040	52140	AE160	$2,515.00

1-2 3-5 6-10 11 12-16 17-20 21-25 26-35 52-59

OHEC 108 (Rev. 3/81)

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

May 22, 1992

Carrie Lynch
Law Engineering
P.O. Box 102655
Atlanta, Georgia 30368-0655

Re: Crown SC-576
GWPD Site ID # 06443
Invoice #39-3802-0684
Invoice #39-3844-0684
Highways 28 & 32
McCormick County

Dear Ms. Lynch:

The S.C. Department of Health and Environmental Control (SCDHEC) has reviewed and approved Law Engineering's Invoices numbered 39-3802-0684 and 39-3844-0684 for payment of $440.00 and $2075.00, respectively. This represents the addition of $100.00 to the later Invoice to cover the allowable Invoice preparation fee of $100.00 per program task (EAP preparation).

A check subtotaling $2515.00 will be processed from the State Underground Petroleum Environmental Response Bank (SUPERB) Account and sent directly to Law Engineering in about three weeks.

As discussed during a May 21, 1992 phone conversation with Carrie Lynch of Law Engineering, the SUPERB Invoice forms specify that each "date of work" must be provided separately on the forms with the description of work and hours worked that day. The SCDHEC will not accept any future packages where the dates of work have been grouped together into time frames.

Further, please note that the SUPERB Guidance specifies that Invoicing against the SUPERB Account cannot occur any more frequently than once per month per site.

If you have any questions, feel free to call Read Miner at (803) 734-5327.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

recycled paper

JRH/rsm
7463CONT.PAY

cc: Bob Jackson
Upper Savannah District EQC

Paul Bristol
Central Midlands District EQC

Read Miner
GWPD

Robertha Dorsey
GWPD

Mr. Matthew E. Gilmore
Crown Central Petroleum Corporation
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (301) 539-7400

April 28, 1992

Mr. Read S. Miner
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RECEIVED
MAY 01 1992
Groundwater Protection
Division

RE: SC-576
200 N. Mine Street
(Hwys 28 & 32)
McCormick County
McCormick, SC 29835

GWPD# 06443

Dear Mr. Miner:

Per your January 17, 1992 letter, enclosed are copies of the requested Expanded Assessment Plan, the Cost Proposal to perform the work, and an invoice for the EAP preparation.

Please respond/approve the EAP at your earliest convenience so that we may begin the work. If you have any questions, please do not hesitate to call me at (410) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

Enclosures

cc: M.L. O'Connell
Carrie Lynch - Law Engineering
(Columbia Office)

d:\sc\576\eap.app

April 21, 1992

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

The South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

cost for preparation of this plan paid for from SUPERB on 5/22/92

Attention: Mr. Read S. Miner
Hydrogeologist

Subject: Initial Corrective Measures - Free Product Evacuation
Crown SC - 576
McCormick County
GWPD Site ID # 06443
Law Engineering Project No. 499-2-4051-02

Site ID # 06443

RECEIVED
APR 27 1992
Groundwater Protection
Division

Dear Mr. Miner,

As requested by the SCDHEC, Law Engineering has prepared this Free Product Gauging and Bailing Plan for immediate evacuation of free product in the four monitoring wells on site. The Free Product Gauging and Bailing Plan is typically included in the Expanded Assessment Plan (EAP); however, as the SCDHEC requested, the free product removal plan has been developed separately to initiate free product evacuation immediately.

Enclosed is an invoice for preparation of approximately 25% of the EAP. Specifically, the invoice is compiled of development of the Free Product Gauging and Bailing Plan, regulatory correspondence, coordination of a free product disposal contract, and project management activities performed to date for this project. As discussed, we have retained copies of associated time sheets for review, if necessary. Please advise if any additional information is required to process this invoice.

We initiated gauging and bailing activities the week of April 13, 1992. In confirmation of our telephone conversation of March 31, 1992, Crown Central Petroleum Corporation will be utilizing the contractor billing option of SUPERB for reimbursement of weekly gauging and bailing activities associated with the project site until a cost proposal number has been issued by the SCDHEC. Thus, monthly invoices will be submitted to SCDHEC for a period of two months to be processed by the contractor billing option of SUPERB.

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

We are currently in the process of preparing the EAP and associated SUPERB Cost Proposal Forms. We anticipate EAP and SUPERB forms will be submitted to the SCDHEC by April 15, 1992.

Please feel free to contact us at 798-1200 if you have any questions or comments concerning the billing options to be utilized for this project. We appreciate your attention in this matter.

Sincerely,

LAW ENGINEERING, INC.

Carrie L. Lynch
Project Manager

Thomas L. Lammons, P.G.
Principal Hydrogeologist

CLL/TLL:tem

enclosures: Free Product Gaging and Bailing Plan
SUPERB Invoice Form

cc: billing file

LAW ENGINEERING

FREE PRODUCT GAUGING AND BAILING PLAN

CROWN STATION S.C. - 576
McCORMICK, SOUTH CAROLINA

Prepared for:

Crown Central Petroleum Corporation
Baltimore, Maryland

Prepared by:

Law Engineering, Inc.
Columbia, South Carolina

RECEIVED
APR 27 1992
Groundwater Protection Division

April 21, 1992
Law Engineering Project No. 499-2-4051-02

copy forwarded to central midlands District EQC

LAW ENGINEERING

PROJECT INFORMATION

Law Engineering completed a Groundwater Contamination Assessment for the subject site in August, 1991. The results of the contamination assessment indicated the presence of free product in four of the five wells currently installed at the site. In conjunction with our contamination assessment, free product bailing activities were performed on a weekly basis for four weeks between the months of April and May in 1991. The free product removed from the wells was stored in approximately four to six 55-gallon drums on site.

Based on the results of the contamination assessment and subsequent bailing activities, we recommended that separate phase hydrocarbon pumps be installed in recovery wells to remove free product from the ground water on site. The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed our assessment report and concurs with our recommendations. In addition, the SCDHEC has requested that Crown Central conduct immediate removal of free product in ground-water monitoring wells on site. The SCDHEC suggests gaging and bailing the free product from the wells to evaluate the rate of product recovery prior to installing product recovery pumps.

Crown Central is requesting Law Engineering to perform the free product removal activities specified by the SCDHEC. We propose to perform gaging and bailing of free product in the monitoring wells on site on a weekly basis for eight consecutive weeks.

We understand that most costs associated with remediation of the site should be reimbursed by the SUPERB Account. The SCDHEC suggests costs encountered for free product removal be processed through the contractor billing or reimbursement options of SUPERB. We propose to invoice costs for this phase of the work under the contractor billing option.

SCOPE OF SERVICES

The purpose of this gaging and bailing plan is to initiate immediate removal of free product from the monitoring wells on site, and to evaluate the free product recovery rate to assist in designing and implementing future recovery and remediation systems. The free product recovery plan consists of the following tasks:

- Conduct a weekly site visit to obtain water level and free product measurements in the monitoring wells on site using an interface probe. A weekly summary report of site activities will be prepared for submittal to SCDHEC for reimbursement of costs. Weekly site visits will continue for eight consecutive weeks.

- Remove free product from contaminated wells on weekly basis using a polyethylene bailer. The removed free product will be placed in six additional 55-gallon drums which will be located on site.

- Coordinate with Bryson Industrial Services for disposal of the four drums currently on site, and the additional drums of free product collected during the eight weeks of gaging and bailing. Please note a waste profile sheet and disposal manifests will need to be signed by Crown Central.

- Comply with the SCDHEC regulations concerning free product recovery and disposal, including submittal of disposal manifests associated with this project.

- Prepare SCDHEC invoice forms for processing through the contractor billing option of SUPERB. An invoice form and a summary report of gaging and bailing activities will be submitted on a monthly basis to the SCDHEC for reimbursement.

The above services will be performed by Law Engineering and approved subcontractors.

March 20, 1992

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

RECEIVED
MAR 23 1992
Groundwater Protection
Division

The South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Attention: Mr. Read S. Miner
Hydrogeologist

Subject: Crown SC - 576
McCormick County
GWPD Site ID # 06443
Law Engineering Project No. 492-1-4051-01

Dear Mr. Miner,

In confirmation of our telephone conversation of March 17, 1992, Crown Central Petroleum Corporation will be utilizing the contractor billing option of SUPERB for reimbursement of gaging and bailing activities associated with the project site until a purchase order has been issued by the SCDHEC.

Law Engineering will be submitting our invoice, a SUPERB invoice form, and supporting progress sheets on a monthly basis to the SCDHEC for reimbursement. Progress sheets will summarize weekly free product gaging and bailing activities conducted in four monitoring wells on site. An example of a progress sheet is enclosed. Please advise if any additional information will be required to process each invoice.

We understand that invoices submitted to the SCDHEC should be expedited quickly provided completed progress sheets are submitted supporting each invoice. We anticipate initiating gaging and bailing activities by the end of March, 1992.

Please feel free to contact us at 798-1200 if you have any questions or comments concerning the contractor billing option to be utilized for this project. We appreciate your attention in this matter.

Sincerely,

LAW ENGINEERING, INC.

Carrie L. Lynch
Project Manager

CLL:tem

enclosure

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

GROUNDWATER MONITORING WELL FIELD DATA

CLIENT: _____ **PROJECT NAME:** _____ **JOB NO.:** _____

LOCATION: _____ **PERSONNEL:** _____ **GWPD ID #:** _____

WEATHER CONDITIONS: _____ **DATE:** _____

Well Description							
Well Diameter, in.							
Well Depth, ft.							
Water Level, ft.							
Well Elevation, msl							
Groundwater Elevation, msl							
Free Product in well, in.							
Free Product evacuated, gal.							
Evacuation Method							
Conductivity							
Temperature							

COMMENTS:

(env.welldata)

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (410) 539-7400

March 17, 1992

Mr. Read S. Miner
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RE: SC-576
201 Hwy. 28 & 32
McCormick County
McCormick, SC 29835

GWPD# 06443

Dear Mr. Miner:

In response to your letter dated January 17, 1992, enclosed is a copy of the tank test results for SC-576 as you requested. All other requirements are currently being addressed.

If you have any questions, please do not hesitate to call me at (410) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

Enclosure

cc: J. G. Woody
John Leslie - Law En. (Columbia)

d:\sc\576\tanktest.let

RECEIVED
MAR 24 1992
Groundwater Protection
Division

PRECISION TANK SERVICE, INC.

RECEIVED

MAR 1 1 1992

ENVIRONMENTAL COMPLIANCE DEPT.

11-14-1991
Crown Central Petro/Charl
7720 Mt. Holly Road
Charlotte , NC 28214

Test Number: 911113A-05
Location: SC576, McCormick, SC

Dear Kim Waggoner,

A tank integrity test was performed on the above storage tank(s) using the LEAK COMPUTER system. This test was performed in accordance with the precision test requirements of EPA-40-CFR part 240 subpart d, as well as the manufacturers reccomended procedures.

The results of the test are given below and indicate whether the tank(s) with the associated piping (with the exception of pressurized piping) passed or failed the integrity criteria. Included is the computer printout of the test data, indicating the average leak rate and the confidence level as shown at the end of each strip chart. This information is stored in a permanent file, if future verification is needed to confirm the tank integrity at the time of the test.

TEST RESULTS

PRODUCT	VOLUME	LEAK RATE(gph)	TEST LEVEL	CONCLUSION
PLUS	8000	0.007	16	PASS
UNLEAD	8000	0.031	41	PASS
PREM	8000	0.031	6	PASS

If you have any questions, please feel free to call me at (704) 892-8600.

Sincerely,

Jeff McCrary
Certification Number: A/P 307
Precision Tank Service Inc.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

January 17, 1992

Mr. Matthew E. Gilmore
Crown Central Petroleum Corporation
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

Re: Crown SC-576
GWPD Site ID # 06443
August 16, 1991 Assessment Report
Highways 28 & 32
McCormick County

Dear Mr. Gilmore:

Per November 20, 1990 correspondence, the S.C. Department of Health and Environmental Control (SCDHEC) requested the submittal of the results of the system check (tank and line tightness tests) on or before December 7, 1990. They have not been received and are required to be submitted on or before March 29, 1992.

The SCDHEC has reviewed Law Engineering's August 16, 1991 report for the referenced facility and concurs with their recommendations.

Per the S.C. Underground Storage Tank Control Regulations 280.64, the recovery of free phase product is mandated. The SCDHEC suggests that initially free product should be manually bailed from the wells and the rate of product recovery into the wells determined. The frequency of bailing should be dictated by the rate of recovery into the well. If free product continues to enter the well at a rapid rate, the technical and financial feasibility of an automated system should be considered. As you may be aware, the installation and operation of a "product only" recovery system in an existing monitoring well does not require any permits. However, quarterly status reports which document the operational parameters, quantities of product recovered during that quarter, and disposal manifests are required. A free product recovery report (2 copies) which documents all free product recovery activities to date and includes a proposal for continuing recovery is required to be submitted on or before March 29, 1992.

A plan (2 copies) for additional assessment is required to be submitted on or before March 29, 1992. In addition to the recommendations outlined in the referenced report, the following comments should also be considered during the development of the assessment plan.

recycled paper

Because of the high concentrations of gasoline constituents detected in monitoring well (MW-6) and the apparent downward gradient, one of the proposed Type III deep monitoring wells should be paired with MW-6 and include a short (5 foot length) well screen which is set at a depth at least 15 feet deeper than the bottom of the well screen in MW-6.

Wells that contain measurable thicknesses of free phase product are not required to be sampled for ground-water quality (excluding the worst case well). However, the thickness of product and water/product potentiometric data should be documented.

The first interim quarterly ground-water monitoring event should take place three months subsequent to the sampling event completed in conjunction with the installation of the next monitoring wells.

All investigations that will be needed to obtain all necessary data for a thorough Corrective Action Plan (CAP) should be completed during this phase of assessment. A copy of SCDHEC's Remediation Guidance Document, which outlines the requirements for a CAP, has been enclosed.

The selection of a wastewater discharge option must be initiated at this time. The worst case well (containing the greatest thickness of free product) should be determined during the next sampling event and ground water from that well analyzed for an expanded list of worst case parameters. These are outlined in the guidance included in Appendix F of the referenced report.

1) if surface discharge is chosen, an NPDES permit application (2 copies) should be submitted with the next assessment report (AR)/CAP;

2) if discharge to a public owned treatment works (POTW) is chosen, the POTW should be contacted immediately. A status update with copies of all pertinent correspondence should be submitted with the next AR/CAP;

3) if an infiltration gallery or reinjection well will be utilized, an ER (4 copies) and Underground Injection Control (UIC) permit application (2 copies) with the next AR/CAP

The SCDHEC has evaluated your August 22, 1991 request for State Underground Petroleum Environmental Response BANK (SUPERB) Act qualification. According to the SCDHEC's records, tank registration fees have been paid for the 1988, 1989, 1990, and 1991 fiscal years. A release, which warrants site rehabilitation, was reported to the SCDHEC on December 13, 1989 during the initial SUPERB amnesty period.

Therefore, reasonable costs incurred up to $1 million for rehabilitation of contaminated soils and ground water at the referenced facility may be reimbursed from or directly billed to the SUPERB Account.

Per Crown's August 22, 1991 correspondence, the SCDHEC understands Crown's desire for future costs to be processed through the direct billing option of SUPERB. However (as expeditious free product recovery is mandated by regulation), free product recovery should **not** be delayed in order to establish direct billing. In the interim, the associated reasonable costs incurred for free product recovery can be processed through either the reimbursement or contractor billing options of SUPERB.

A cost proposal (completed on the SCDHEC's cost proposal forms) for continuing free product recovery and implementation of the additional assessment should be submitted with the assessment plan and free product recovery report discussed above. After review and approval of that cost proposal, future incurred costs may be processed through the direct billing option of SUPERB.

If you have any questions, feel free to call me at (803) 734-5327.

Sincerely,

Read S Miner

Read S. Miner, Hydrogeologist
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

RSM/rsm
7463CRWN.TXT

Enc: June 17, 1991 Remediation Guidance

cc: Bob Jackson
Upper Savannah District EQC

Paul Bristol
Central Midlands District EQC

Ronald R. Austin
Law Engineering

Robertha Dorsey
GWPD

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (301) 539-7400

August 22, 1991

Mr. Christopher S. Doll
South Carolina Dept. of
Health & Environmental Control
2600 Bull Street
Columbia, SC 29201

RECEIVED
AUG 26 1991
PROTECTION DIVISION

RE: SC-576 (PCAS 7463)
201 Highway 28 & 32
McCormick County
McCormick, SC

Dear Mr. Doll:

Enclosed is a copy of the August 16, 1991 Contamination Assessment report completed by Law Engineering for your review/approval.

In addition, Crown is requesting approval for SUPERB Trust Fund reimbursement on this site. The enclosed report indicates that there is a need for environmental site rehabilitation. If acceptable, Crown would prefer the subcontractor direct billing method of reimbursement. Law Engineering will likely be our chosen subcontractor.

If I can provide more information regarding this location, please do not hesitate to contact me at (301) 659-4862.

Sincerely,

Matthew E. Gilmore
Sr. Maintenance Engineer

dr

Enclosure

\sc\576\contamin.rev

F1

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary

Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

November 20, 1990

Mr. Jerry Biltz
Fast Fare, Inc.
1345 Garner Lane, Suite 202
Columbia, SC 29210

Re: Underground Storage Tank(s)
Release Reporting, Investigation, and Confirmation
Fast Fare #SC-576, Highways 28 & 32, McCormick, SC
Registration No. N-35-NO-06443

Dear Mr. Biltz:

This letter is in response to our November 15, 1990 conversation concerning a failed tank tightness test at the referenced facility. It was reported that the premium gasoline underground storage tank system (tank and lines) failed a tightness test on November 12. The leak rate was not available at the time of the report. South Carolina Underground Storage Tank Control Regulations R.61-92, Part 280.52 require that owners and operators of underground storage tank (UST) systems must immediately investigate and confirm all suspected releases of regulated substances. Therefore, in accordance with R.61-92, Part 280.52, release investigation and confirmation must be undertaken and the procedures outlined in R.61-92, Part 280.52 followed. In addition, the premium gasoline UST system must be taken out of service and emptied of product.

To fulfill the requirements of R.61-92, Part 280.52, a site check to measure for the presence of a release where contamination is most likely to be present at the UST site must be conducted. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of ground water, and other factors appropriate for identifying the presence and source of the release. The results of the system check (tightness test) should be submitted no later than December 7, 1990. A plan for soil and/or ground-water investigation should be submitted to my attention at the Ground-Water Protection Division by no later than January 4, 1991.

Upon SCDHEC approval and initiation of the preliminary assessment plan requested above, please be reminded that the initial response and report requirements outlined in R.61-92, Part 280.60 apply. If you have any questions or comments, feel free to call at (803) 734-4550.

recycled paper

Sincerely,

Mark Berenbrok, Hydrogeologist
Underground Storage Tank Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

MKB/mb
BILTZ:TXT

Enclosures: SC Underground Storage Tank Control Regulations

cc: Upper Savannah District EQC

FL

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

March 18, 1991

Crown Central Petroleum Corporation
Attn: Howard Smith
One North Charles
Baltimore, Maryland 21201

Re: Fast Fare #SC-576 (PCAS 7463)
Assessment Plan, Received March 11, 1991
McCormick, McCormick County

Dear Mr. Smith,

The Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control has reviewed the referenced submittal prepared by Law Engineering for the referenced facility.

This investigation, to define the horizontal and vertical extent of the contamination, is approvable as proposed. The report should be submitted on or before June 14, 1991.

Approval for installation of ground-water monitoring wells has been issued to Law Engineering. A copy of this approval has been attached for your records.

If you have any questions or comments, please contact the writer at (803)734-5333.

Sincerely,

Christopher S. Doll, P.G., Hydrogeologist
Underground Storage Tank Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

CSD/csd

Attachment

cc: Bob Jackson, Upper Savannah District EQC
Rick Grant, Law Engineering

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Law Engineering
Post Office Box 21879
Columbia, South Carolina 29221-1879

RE: Fast Fare #SC-576 (PCAS 7463)
McCormick County

for the construction of six monitoring wells located and designated in accordance with the construction plans and specifications submitted on March 11, 1991.

The well(s) will be screened in the surficial aquifer for the purpose of ground-water assessment and monitoring.

Conditions: The latitude and longitude and actual construction details for the well shall be submitted with the assessment report. Paul Bristol of the Central Midlands District EQC (803-935-7015) should be notified at least 72 hours prior to well installation.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Date of Issue: March 18, 1991.

Stanley M. Swartzel

Stanley M. Swartzel, Manager
Underground Storage Tank Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

0208912087/vk

cc: Bob Jackson, Upper Savannah District EQC
Paul Bristol, Central Midlands District EQC
Howard Smith, Crown Central Petroleum Corporation

recycled paper

Crown Central Petroleum Corporation
Refiners / marketers of petroleum products & petrochemicals
One North Charles Street • P.O. Box 1168 • Baltimore, Maryland 21203 • (301) 539-7400

March 8, 1991

Mr. C. S. Doll
SOUTH CAROLINA DEPARTMENT OF
HEALTH & ENVIRONMENTAL CONTROL
2600 Bull Street
Columbia, South Carolina 29201

RE: Fast Fare SC-576 (PCAS 7463)
201 Highway 28 & 32
McCormick County
McCormick, South Carolina

Dear Mr. Doll:

Crown received your letter dated February 28, 1991. A contract was issued to Law Engineering in Columbia for assessment planning. By now, you should have received the plan direct from Mr. J. R. Grant of Law Engineering. If I can provide you additional details or comments, please contact me at (301) 659-4862.

Very truly yours,

J. Howard Smith /SS

J. Howard Smith
Projects Manager

JHS:sas

cc: J. A. Kaden
C. R. McCord

D:\sc\576\doll.jhs

RECEIVED
MAR 11 1991
GROUND-WATER
PROTECTION DIVISION

FR

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

February 28, 1991

Crown Central Petroleum Corporation
Attn: Howard Smith
One North Charles
Baltimore, Maryland 21201

Re: Request for Assessment Plan
Fast Fare # SC-576
McCormick, McCormick County
N-35-NO-06443, PCAS 7463

Dear Sir,

The Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control has previously requested a plan for soil and/or ground-water assessment at the referenced facility.

To date, the plan has not been received by this office. You are requested to send the plan or the reason for failure to submit the plan to the attention of the writer within 30 days of the date of this letter.

If you have any questions or comments, please contact the writer at (803)734-5331.

Sincerely,

Christopher S. Doll, P.G., Hydrogeologist
Underground Storage Tank Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

CSD/csd

cc: Upper Savannah District EQC

recycled paper

File

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: John B. Pate, MD, Chairman
William E. Applegate, III, Vice Chairman
John H. Burriss, Secretary
Toney Graham, Jr., MD
Richard E. Jabbour, DDS
Henry S. Jordan, MD
Currie B. Spivey, Jr.

Promoting Health, Protecting the Environment

October 2, 1990

Crown Central Petroleum Corporation
Attn: Howard Smith
One North Charles
Baltimore, Maryland 21201

Re: December 13, 1989 Release Report
Fast Fare # SC-576
McCormick, McCormick County
N-35-NO-06443, PCAS-7463

Dear Sir,

The Ground-Water Protection Division (GWPD) of the S. C. Department of Health and Environmental Control (SCDHEC) has reviewed the referenced submittal. This submittal is the report of the site check outlined in the South Carolina Underground Storage Tank Control Regulations (SCUSTCR), Part 280.52. The analytical results indicate the possibility that a release of regulated substance has occurred at the facility. Therefore in accordance with SCUSTCR Part 280.62, release investigation must be undertaken and the procedures outlined in SCUSTCR Part 280.62(a5) followed.

To fulfill the requirements of SCUSTCR Part 280.62(a5), additional investigation must be conducted to define the horizontal and vertical extent of the contamination. If ground water is encountered, then a sample must be taken and analyzed for Total Petroleum Hydrocarbons and total BETX (Benzene, Ethylbenzene, Toluene, Xylenes).

The South Carolina State Underground Petroleum Environmental Response Bank Act of 1988 (SUPERB) provides for the rehabilitation of any qualified site contaminated with petroleum or petroleum products released from underground storage tanks. The necessity of rehabilitation at the subject site has not yet been established, therefore the requested assessment is not immediately eligible for reimbursement through SUPERB. If rehabilitation is required, all reasonable costs associated with this assessment will then be subject to reimbursement.

A proposal for soil and/or ground-water investigation should be submitted to the writer no later than December 3, 1990.

recycled paper

If you have any questions, contact me at (803)734-5333.

Sincerely,

Christopher S. Doll, P.G., Hydrogeologist
Underground Storage Tank Section
Ground Water Protection Division
Bureau of Drinking Water Protection

CSD/csd

cc: Upper Savannah District EQC

atlanta testing
& engineering
8901 farrow road / suite 108a / columbia, south carolina 29203 / (803) 736-1700 / fax: (803) 736-5005

1969 Our 20th Year 1989

November 29, 1989

RECEIVED
DEC 13 1989
GROUND WATER
PROTECTION DIVISION

7463
McCormick

Mr. Jim Hess, Manager
South Carolina Department of Health
and Environmental Control
Underground Storage Tank Section
Ground Water Protection Division
2600 Bull Street
Columbia, South Carolina 29201

Re: Crown Central Petroleum Corporation
UST Assessment Reports
South Carolina Sites

Dear Jim,

Enclosed please find copies of the referenced reports for the Crown/Fast Fare sites in South Carolina. The site locations are cross-referenced on the attached sheet with the Well Permit ID numbers.

Mr. Howard Smith, Crown Central Petroleum Corporation, will forward a letter to you, under separate cover, requesting authorization for clean-up funds from the **SUPERB** Account for applicable sites, per the State Underground Petroleum Environmental Response Bank (SUPERB) Act of 1988.

Please call if you should have any questions, or if we can provide additional information.

Respectfully submitted,

ATLANTA TESTING & ENGINEERING

Charles R. Clymer, Jr. P.G.
Senior Hydrogeologist
S.C. Reg. 236

CRC:cbs

Enclosures

cc: Howard Smith
Crown Central Petroleum Corporation

FACILITY ADDRESS		SCDHEC PERMIT ID NO.	CROWN REF NO. PCAS
800 Broad Street	Clinton	N-30-NO-05670	SC-560 7462
Highway 28	McCormick	N-35-NO-06443	SC-576 7463
1664 E. Greenville St.	Anderson	N-04-NO-00570	SC-592 7464
830 Bleckly Street	Anderson	N-04-NO-00565	SC-590 7465
2706 E. North Street	Anderson	N-04-NO-00567	SC-591 7466

atlanta testing
& engineering
8901 farrow road / suite 108a / columbia, south carolina 29203 / (803) 736-1700 / fax: (803) 736-5005

1969 Our 20th Year 1989

November 27, 1989

RECEIVED
DEC 13 1989
GROUND WATER
PROTECTION DIVISION

PCAS
7463

Mr. Howard Smith
Crown Central Petroleum Corporation
One North Charles
Baltimore, Maryland 21201

Re: Tank Assessment Report
Crown Central Petroleum Facility
Store No.: SC-576
Location: Highway 28
McCormick County
McCormick, South Carolina
Job No. C-1012

Dear Mr. Smith:

Atlanta Testing & Engineering has completed the authorized underground storage tank assessment at the referenced site and presents its findings in this report.

INTRODUCTION

The Fast Fare site is located on Highway 28 in McCormick, South Carolina. The assessment was performed to evaluate soil conditions and verify that no releases had occurred in the vicinity of the underground storage tank (UST) pit. The work was performed in accordance with our Proposal No. 89-069 and Crown Purchase Order Number 9-328, as authorized by R.S. Garvine on April 26, 1989.

SCOPE OF WORK

The scope of work, as identified in the proposal, is as follows:

1. Install four monitoring/leak detection wells within the UST pit at locations marked by Crown. To avoid cross-contamination between wells, the augers and all other down hole equipment will be steam-cleaned prior to drilling each well.

2. Collect soil samples from each well bore at a depth of seven feet. These samples are to be forwarded to Harco Technologies, Decatur, Georgia for corrosion analysis.

SCOPE OF WORK (continued)

3. Collect composite soil samples from each well bore for Organic Vapor Analysis (OVA). Samples from dry holes are to be collected at a depth of fifteen to eighteen feet. Samples from wet holes are to be collected just above the water table.

4. If the OVA results exceed 10 parts per million (ppm) in the Coastal Plain or 100 ppm in the Piedmont, then submit the soil samples to an approved laboratory for Total Petroleum Hydrocarbon (TPH) analysis. In addition, if the hole is wet, develop and sample the well. The water sample is to be submitted to an approved laboratory for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) analysis.

5. Clean site and dispose of "clean" soils.

6. Prepare a report documenting our findings, including a site map with well locations, well completion logs, soil and groundwater quality analyses, conclusions, and recommendations for additional action, as necessary.

SUMMARY OF FINDINGS

The following is a summary of our findings:

1. Four monitor/leak detection wells were installed on October 26, 1989. MW-1, MW-2 and MW-3 were installed to a depth of eighteen feet. Well MW-4 was installed to a depth of 10.5 feet due to auger refusal on rock. The well locations are shown on Plate 1. Well completion logs are presented in the Appendix.

2. Soil samples from a depth of seven feet were shipped to Harco Technologies on October 30, 1989 accompanied with a Chain of Custody Log.

3. The OVA testing results indicated organic vapor concentrations greater than 100 ppm in wells MW-1, MW-2, MW-3 and MW-4. The OVA concentrations are included in Table 1.

4. The laboratory analysis of soil samples indicated detectable levels of TPH (petroleum hydrocarbon) constituents in wells MW-1, MW-2, MW-3 and MW-4. The laboratory analytical report is included in the Appendix. It should be noted that the soil sample from MW-4 was collected from a depth of 10.5 feet.

5. Groundwater was not encountered in the four wells.

WELL INSTALLATION

The monitor/leak detection wells were installed to a predetermined depth of approximately eighteen feet. The wells were constructed with fifteen feet of four inch schedule 40 PVC slotted screen and three feet of riser. The wells were completed with locking caps and set in waterproof protective manholes. The wells were installed by a South Carolina Certified Well Driller, with approval granted by the South Carolina Department of Health and Environmental Control (SCDHEC), in accordance with R.61-71.

SAMPLING AND ANALYSIS PROGRAM

A soil sample from each well bore was collected from the hollow stem augers and tested for organic vapors (OVA) by the head space vapor extraction technique. The sample depths were typically fifteen to eighteen feet; however, if groundwater was encountered, the samples were collected just above the water table. The soil samples were stored in clean glass jars allowing approximately 25% head space. The jars were sealed with parafilm and a screw top lid, then transported to the Atlanta Testing & Engineering Columbia office where they were analyzed. The OVA testing was performed at room temperature, using a Photovac International, Inc. TIP II (Total Ionizable Present) Air Analyzer, to measure the total organic vapors present in the samples. The TIP II detects organic vapors with a photoionization potential less than 10.6 eV. Hydrocarbon constituents such as Benzene, Toluene, Ethylbenzene, and Xylenes are all amenable to this type of screening. The total organic vapor concentrations from the soil samples are recorded in parts per million, with a detection limit of 0.1 ppm.

Appropriate soil samples were shipped in an iced container to Savannah Laboratories (Savannah, Georgia), accompanied with a Chain of Custody Log. The samples were analyzed for TPH in accordance with EPA Method 418.1.

A centrifugal pump or Teflon bailer was used for well development. Prior to sampling, a minimum of three well volumes were evacuated from each well. Well development and sampling were performed concurrently.

Clean Teflon bailers were used to collect groundwater samples. Prior to sampling each well, the bailers were washed with lab grade detergent, rinsed with de-ionized water, rinsed with methanol and rinsed again with de-ionized water. The samples were placed in laboratory prepared containers, packed in a cooler filled with ice, and shipped to Savannah Laboratories accompanied with a Chain of Custody Log. The samples were analyzed for BTEX in accordance with EPA Method 602.

CONCLUSIONS AND RECOMMENDATIONS

Based on the field and analytical data, a release of petroleum hydrocarbons has apparently occurred in the vicinity of the UST pit on this site. Additional assessment is recommended to evaluate the extent of hydrocarbon constituents in the soil.

LIMITATIONS

This report has been prepared for the exclusive use of Crown Central Petroleum Corporation. The information contained in this document is applicable only to Store Number SC-576, in McCormick County, South Carolina. We cannot accept responsibility for damages or claims due to past or future contamination or subsequent remediation. Our findings have been developed in accordance with accepted standards of hydrogeology practice in the State of South Carolina, available information and our professional judgement. No other warranty is expressed or implied.

ACKNOWLEDGEMENT

Atlanta Testing & Engineering appreciates the opportunity to provide professional services to Crown Central Petroleum Corporation. If you have any questions regarding the report contents or if we may be of additional assistance, please contact us.

Very truly yours,

ATLANTA TESTING & ENGINEERING

James T. Spell, Jr.
Environmental Engineer

Charles R. Clymer, Jr., P.G.
Senior Hydrogeologist
Reg. SC 236

JTS/CRC:cbs

cc: Rodney Readling, Crown
Jim Woody, Crown
Jim Hess, SCDHEC

APPENDIX

PLATE 1 - SITE PLAT WITH WELL LOCATIONS

TABLE 1 - TOTAL ORGANIC VAPOR CONCENTRATIONS

WELL COMPLETION LOGS

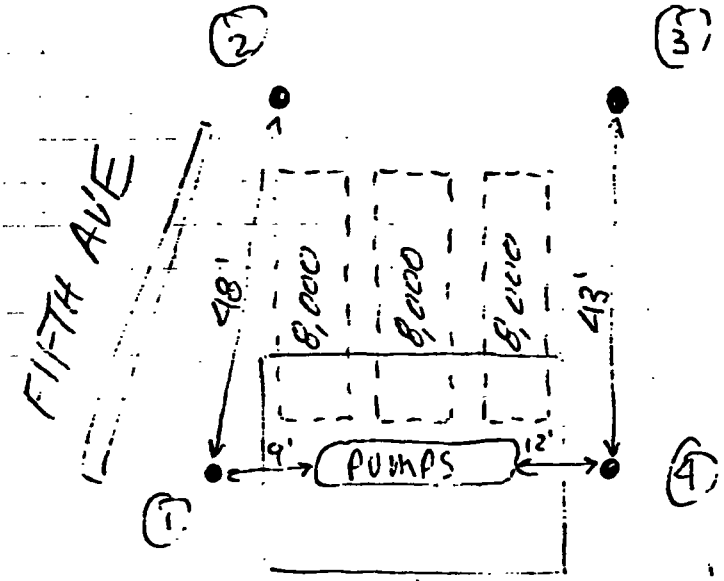
LABORATORY ANALYTICAL REPORTS

CHAIN OF CUSTODY LOGS

SC 576

HWY #28
McCORMICK, S.C.

(ALL ASPHALT)



HWY #28

PLAT PROVIDED BY CCPC PERSONNEL	DATE 8/1/89	DRAWN BY CCPC	CHECKED BY -	SCALE NOT TO SCALE	JOB NO. C-1012	PLATE NO. 1

atlanta testing & engineering
hydrogeologic consultants
florida - georgia - carolinas

SITE PLAT WITH WELL LOCATIONS
CROWN CENTRAL PETROLEUM CORP.
TANK ASSESSMENT PROGRAM
SOUTH CAROLINA

ATE - 108A

TABLE 1

TOTAL ORGANIC VAPOR CONCENTRATIONS
CROWN CENTRAL PETROLEUM CORPORATION
STORE NO. - SC-576
HIGHWAY 28
McCORMICK COUNTY
McCORMICK, SOUTH CAROLINA
JOB NO. C-1012

Boring No.	Depth (feet)	Total Organic* Vapor Concentrations (ppm)
MW-1	18	148.5
MW-2	18	453.0
MW-3	18	864.0
MW-4	10.5	182.0

NOTE: Vapors measured are those with an Ionization Potential of 10.6 eV or less.

* *Isobutylene Equivalent*

atlanta testing & engine ng
geotechnical & material engineeri and hydrogeology

WI . COMPLETION LOG

CLIENT: CROWN CENTRAL PETROLEUM CORPORATION JOB NO: C-1012 WELL NO: MW-1

LOCATION: SC-576/ HIGHWAY 28, McCORMICK LOGGED BY: D. BERGMAN

DATE INSTALLED: 10/26/89 DRILLER: D. BERGMAN

PURPOSE: MONITOR X RECOVERY ___ WATER SUPPLY ___ TEST ___ OTHER ___

CONSTRUCTION DATA

DRILLING METHOD: HOLLOW STEM AUGER
WELL TYPE: SCREEN/GRAVEL PACK
WELL DEPTH(BGS) 18 FEET

CASING/SCREEN/OPEN HOLE

	SCREEN	CASING	
MATERIAL			
DIAMETER(IN.)	4" PVC	4" PVC	
INTERVAL(FT.BGS.)	3-18	0-3	
LENGTH(FT.)	15	3	
BORE HOLE DIA.(IN.)	10	10	
SLOT SIZE(IN.)	0.01	-	

ANNULUS MATERIAL

	SAND	BENTONITE	CEMENT
MATERIAL:			
INTERVAL(FT.BGS.)	3.0-18.0	1.5-3.0	0-1.5
LENGTH(FT.)	15	1.5	1.5

HYDROGEOLOGIC DATA

AQUIFER TYPE: ___
SPECIFIC CAPACITY: ___ gpm/ft.
TRANSMISSIVITY: ___ gpd/ft.
STORAGE COEFFICIENT/SPECIFIC YIELD: ___
DEPTH TO WATER(BTOC) ___ FT.
DATE/TIME ___

ELEVATION DATA

GROUND ELEVATION: ___
CASING STICKUP: ___ FT.
TOC ELEVATION: ___
SURVEYED BY: ___

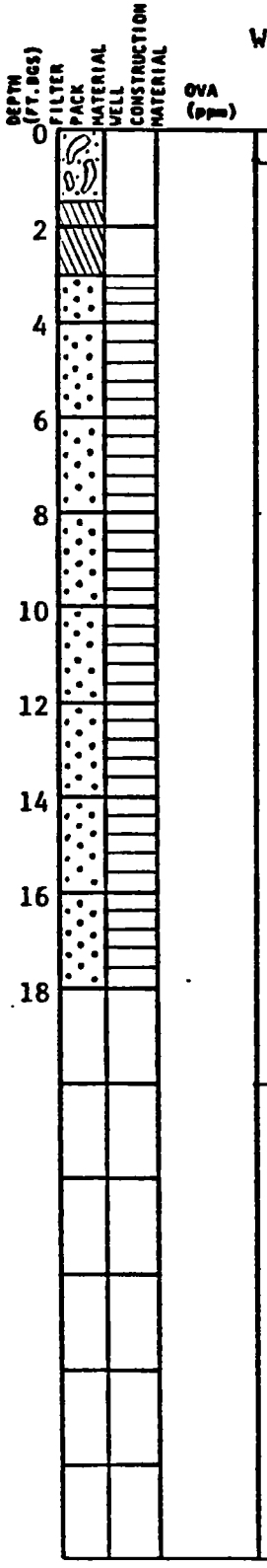
COMMENTS:

LONGITUDE -

LATITUDE -

WELLS COMPLETED WITH LOCKING WATERTIGHT CAPS AND PROTECTIVE MANHOLES.

WELL CONSTRUCTION DIAGRAM



SOIL/ROCK DESCRIPTION

6" ASPHALT WITH GRAVEL BASE

TAN SANDY SILT

BORING TERMINATED AT 20 FEET

NO GROUNDWATER WAS ENCOUNTERED AT TIME OF BORING.

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W . COMPLETION LOG

CLIENT: CROWN CENTRAL PETROLEUM CORPORATION JOB NO: C-1012 WELL NO: MW-2

LOCATION: SC-576/ HIGHWAY 28, McCORMICK LOGGED BY: D. BERGMAN

DATE INSTALLED: 10/26/89 DRILLER: D. BERGMAN

PURPOSE: MONITOR X RECOVERY ___ WATER SUPPLY ___ TEST ___ OTHER ___

CONSTRUCTION DATA

DRILLING METHOD: HOLLOW STEM AUGER
WELL TYPE: SCREEN/GRAVEL PACK
WELL DEPTH(BGS) 18 FEET

CASING/SCREEN/OPEN HOLE

	SCREEN	CASING	
MATERIAL			
DIAMETER(IN.)	4" PVC	4" PVC	
INTERVAL(FT.BGS.)	3-18	0-3	
LENGTH(FT.)	15	3	
BORE HOLE DIA.(IN.)	10	10	
SLOT SIZE(IN.)	0.01	-	

ANNULUS MATERIAL

MATERIAL:	SAND	BENTONITE	CEMENT
INTERVAL(FT.BGS.)	3.0-18.0	1.5-3.0	0-1.5
LENGTH(FT.)	15	1.5	1.5

HYDROGEOLOGIC DATA

AQUIFER TYPE: ___
SPECIFIC CAPACITY: ___ gpm/ft.
TRANSMISSIVITY: ___ gpd/ft.
STORAGE COEFFICIENT/SPECIFIC YIELD: ___
DEPTH TO WATER(BTOC) ___ FT.
DATE/TIME ___

ELEVATION DATA

GROUND ELEVATION: ___
CASING STICKUP: ___ FT.
TOC ELEVATION: ___
SURVEYED BY: ___

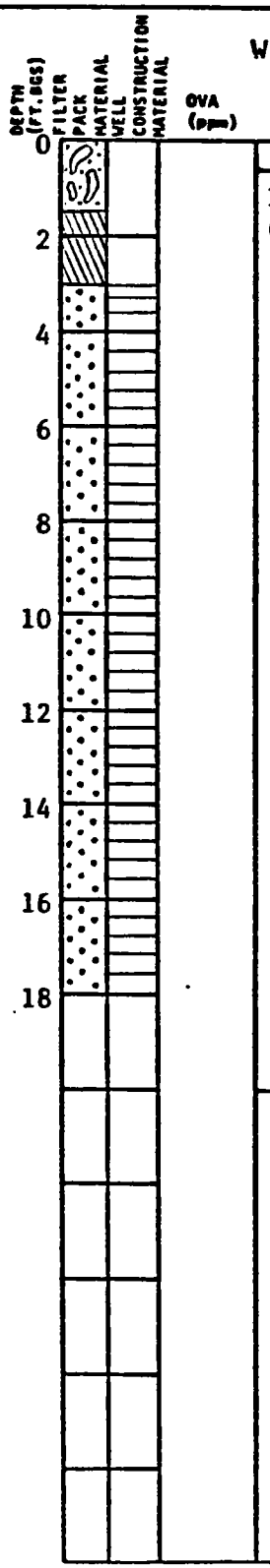
COMMENTS:

LONGITUDE -

LATITUDE -

WELLS COMPLETED WITH LOCKING WATERTIGHT CAPS AND PROTECTIVE MANHOLES.

WELL CONSTRUCTION DIAGRAM



SOIL/ROCK DESCRIPTION

6" ASPHALT WITH GRAVEL BASE

REDDISH-BROWN MICACEOUS SANDY CLAYEY SILT

BORING TERMINATED AT 20 FEET

NO GROUNDWATER WAS ENCOUNTERED AT TIME OF BORING.

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WELL COMPLETION LOG

CLIENT: CROWN CENTRAL PETROLEUM CORPORATION JOB NO: C-1012 WELL NO: MW-3

LOCATION: SC-576/ HIGHWAY 28, McCORMICK LOGGED BY: D. BERGMAN

DATE INSTALLED: 10/26/89 DRILLER: D. BERGMAN

PURPOSE: MONITOR X RECOVERY ___ WATER SUPPLY ___ TEST ___ OTHER ___

CONSTRUCTION DATA

DRILLING METHOD: HOLLOW STEM AUGER
WELL TYPE: SCREEN/GRAVEL PACK
WELL DEPTH(BGS) 18 FEET

CASING/SCREEN/OPEN HOLE

	SCREEN	CASING	
MATERIAL			
DIAMETER(IN.)	4" PVC	4" PVC	
INTERVAL(FT.BGS.)	3-18	0-3	
LENGTH(FT.)	15	3	
BORE HOLE DIA.(IN.)	10	10	
SLOT SIZE(IN.)	0.01	-	

ANNULUS MATERIAL

MATERIAL:	SAND	BENTONITE	CEMENT
INTERVAL(FT.BGS.)	3.0-18.0	1.5-3.0	0-1.5
LENGTH(FT.)	15	1.5	1.5

HYDROGEOLOGIC DATA

AQUIFER TYPE: ___
SPECIFIC CAPACITY: ___ gpm/ft.
TRANSMISSIVITY: ___ gpd/ft.
STORAGE COEFFICIENT/SPECIFIC YIELD: ___
DEPTH TO WATER(BTOC) ___ FT.
DATE/TIME ___

ELEVATION DATA

GROUND ELEVATION: ___
CASING STICKUP: ___ FT.
TOC ELEVATION: ___
SURVEYED BY: ___

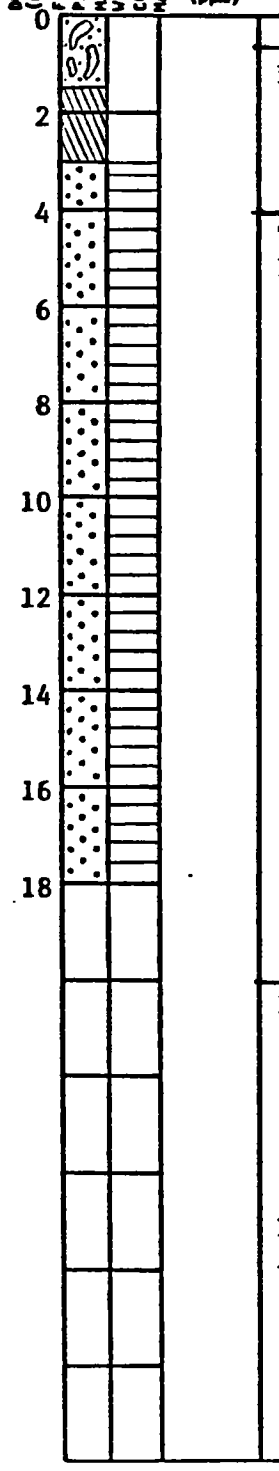
COMMENTS:

LONGITUDE -

LATITUDE -

WELLS COMPLETED WITH LOCKING WATERTIGHT CAPS AND PROTECTIVE MANHOLES.

WELL CONSTRUCTION DIAGRAM



SOIL/ROCK DESCRIPTION

6" ASPHALT WITH GRAVEL BASE

REDDISH BROWN SANDY SILT

TAN SANDY SILT WITH ROCK FRAGMENTS

BORING TERMINATED AT 20 FEET

NO GROUNDWATER WAS ENCOUNTERED AT TIME OF BORING.

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WELL COMPLETION LOG

CLIENT: CROWN CENTRAL PETROLEUM CORPORATION JOB NO: C-1012 WELL NO: MW-4

LOCATION: SC-576/ HIGHWAY 28, McCORMICK LOGGED BY: D. BERGMAN

DATE INSTALLED: 10/26/89 DRILLER: D. BERGMAN

PURPOSE: MONITOR X RECOVERY ___ WATER SUPPLY ___ TEST ___ OTHER ___

CONSTRUCTION DATA

DRILLING METHOD: HOLLOW STEM AUGER
WELL TYPE: SCREEN/GRAVEL PACK
WELL DEPTH(BGS) 10.5 FEET

CASING/SCREEN/OPEN HOLE

	SCREEN	CASING	
MATERIAL			
DIAMETER(IN.)	4" PVC	4" PVC	
INTERVAL(FT.BGS.)	3-10.5	0-3	
LENGTH(FT.)	7.5	3	
BORE HOLE DIA.(IN.)	10	10	
SLOT SIZE(IN.)	0.01	-	

ANNULUS MATERIAL

	SAND	BENTONITE	CEMENT
MATERIAL:			
INTERVAL(FT.BGS.)	3.0-10.5	1.5-3.0	0-1.5
LENGTH(FT.)	7.5	1.5	1.5

HYDROGEOLOGIC DATA

AQUIFER TYPE: ___
SPECIFIC CAPACITY: ___ gpm/ft.
TRANSMISSIVITY: ___ gpd/ft.
STORAGE COEFFICIENT/SPECIFIC YIELD: ___
DEPTH TO WATER(BTOC) ___ FT.
DATE/TIME ___

ELEVATION DATA

GROUND ELEVATION: ___
CASING STICKUP: ___ FT.
TOC ELEVATION: ___
SURVEYED BY: ___

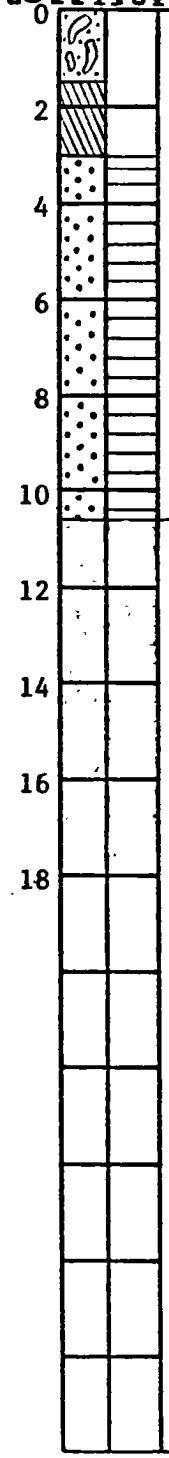
COMMENTS:

LONGITUDE -

LATITUDE -

WELLS COMPLETED WITH LOCKING WATERTIGHT CAPS AND PROTECTIVE MANHOLES.

WELL CONSTRUCTION DIAGRAM



SOIL/ROCK DESCRIPTION

6" ASPHALT WITH GRAVEL BASE

TAN SANDY SILT WITH ROCK FRAGMENTS

BORING TERMINATED AT 10.5 FEET, AUGER REFUSAL

NO GROUNDWATER WAS ENCOUNTERED AT TIME OF BORING.

James W. Andrews, Ph.D.
President

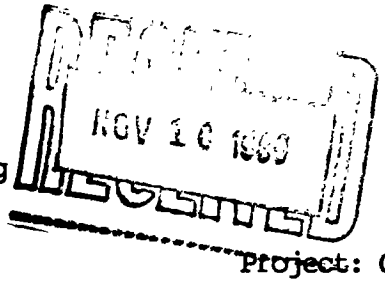
Janette Davis Long
Vice-President

SAVANNAH LABORATORIES AND ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue (31404)
P. O. Box 13548 • Savannah, GA 31416-0548
(912) 354-7858

LOG NO: 89-9439

Received: 01 NOV 89



Mr. Jamie Spell
Atlanta Testing & Engineering
8901 Farrow Rd. Suite 108A
Columbia, SC 29203

Project: C-1012/SC-576/Highway 28

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	SAMPLED BY
9439-1	MW-1 18' (10.26.89)	Client
9439-2	MW-2 18' (10.26.89)	
9439-3	MW-3 18' (10.26.89)	
9439-4	MW-4 18-20.5' (10.26.89)	

PARAMETER	9439-1	9439-2	9439-3	9439-4
Petroleum Hydrocarbons (IR), mg/kg	16	27	12	10
Percent Solids, %	92 %	79 %	93 %	82 %

James W. Andrews, Ph.D.
President

Janette Davis Long
Vice-President

SAVANNAH LABORATORIES AND ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue (31404)
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(912) 354-7858

LOG NO: 89-9439

Received: 01 NOV 89

Mr. Jamie Spell
Atlanta Testing & Engineering
8901 Farrow Rd. Suite 108A
Columbia, SC 29203

Project: C-1012/SC-576/Highway 28

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION , QC SAMPLES	SAMPLED BY
9439-5	Detection Limits	Client
9439-6	Accuracy (Mean % Recovery)	
9439-7	Precision (% RPD)	
9439-8	Date Analyzed	

PARAMETER		9439-5	9439-6	9439-7	9439-8
Petroleum Hydrocarbons (IR),	mg/kg	10	105 %	3.8 %	11.07.89

Methods: EPA SW-846.

Janette D. Long
Janette D. Long

CHAIN OF CUSTODY LOG

atlanta testing & engineering

CLIENT: CROWN CENTRAL PETROLEUM SAMPLE COLLECTED BY: D. BERGMAN

AT&E JOB NO.: C-1012 DATE SAMPLED: 10-26-89 TIME:

SITE LOCATION: MCCORMICK SHEET NO.: 1 OF 1

PROJECT NAME: SC-576 / HWY 28

SAMPLE ID NUMBER	SAMPLE LOCATION	TOTAL NUMBER OF CONTAINERS PER LOCATION	DESCRIPTION (CONTAINERS) / QUANTITY EACH CONTAINER: TALL GLASS	SARS				COMMENTS
MW-1	18'	1	1					
MW-2	18'	1	1					
MW-3	18'	1	1					
MW-4	~~18'~~ 10.5'	1	1					
9439								

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
James T. Spell, Jr.	10-31-89/0830	Yolonda Bonds	11/1/89, 9:35 am

ANALYZE FOR: TPH (418.1 EPA METHOD)

DETECTION LIMITS: 10 ppm

SCHEDULE: 2 WKS

NOTE TO LAB

PLEASE SEND A COPY OF THIS SHEET WITH YOUR SIGNATURE BACK TO

ATLANTA TESTING & ENGINEERING
8901 FARROW RD., SUITE 108-A
COLUMBIA, SC 29203

NOTIFICATION: PLEASE CALL JAMIE SPELL - (803)736-1700 (FAX)736-5005

4674

August 16, 1991

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

Crown Central Petroleum Corporation
One North Charles Street
Post Office Box 1168
Baltimore, MD 21203

Attention: Mr. Matt Gilmore

Subject: Report of Groundwater Contamination Assessment
Crown Station S.C. - 576
McCormick, South Carolina
Law Engineering Job Number 492-1-4051-01

Gentlemen:

As authorized by your acceptance of our Proposal number 4333S0 dated November 1, 1990, Law Engineering has completed our groundwater contamination assessment of the subject site. The purpose of this program was to assess the absence/presence of groundwater contamination by petroleum hydrocarbons at the property. This report describes the work performed and presents the results obtained along with our comments and recommendations.

This report is intended only for the use of Crown Central Petroleum Corporation and their designated agents. The contents should not be relied upon by any other parties without the express written consent of Law Engineering, Inc. The findings are relevant to the dates of our site work.

We appreciate the opportunity to serve as your environmental consultant on this project. Please contact us if we can be of further service, or if you have any questions concerning this report.

Sincerely,

LAW ENGINEERING, INC.

Ronald R. Austin
Staff Engineer

Thomas L. Lammons, P.G.
Senior Hydrogeologist

Joseph P. Klein, III, P.E.
Assistant Vice President
Principal Engineer

RRA/TLL/JPK:tm

RECEIVED
AUG 19 1991
ENVIRONMENTAL COMPLIANCE DEPT.

RECEIVED
AUG 26 1991

UST
3446
DOCKETING

720 GRACERN ROAD • SUITE 132
POST OFFICE BOX 21879
COLUMBIA, SOUTH CAROLINA 29221
803-798-1200

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AUG 30 1991

APPENDICES

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APPENDIX E - Laboratory Test Results

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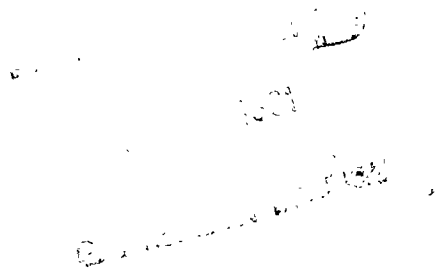


LAW ENGINEERING

1.0 BACKGROUND

1.1 Introduction

Our understanding of the project is based on bid specifications dated October 11, 1990 that we received from Crown Central Petroleum Corporation. The project site is located on South Carolina Highway 28 in McCormick, South Carolina.

A tank assessment was conducted in October 1989 and identified the presence of petroleum hydrocarbon contamination of the soils on site. Crown Central Petroleum Corporation requested a Groundwater Contamination Assessment of the subject site.

1.2 Existing Environmental Data

We understand that a release may have previously occurred on site from one of the product lines associated with the UST's. We have received a copy of the "Tank Assessment Report" prepared by Atlanta Testing and Engineering, dated November 27, 1989. The report was provided by Mr. Matt Gilmore of Crown Central Petroleum Corporation.

As part of the initial tank assessment, four monitoring wells were installed on the site; however, groundwater was not encountered in the wells. Chemical tests on soil samples obtained from the borings indicated the presence of petroleum hydrocarbon contamination.

1.3 Physiographic and Demographic Conditions

The subject property is located at 200 North Mine Street (S.C. Highway 28) in the northwest quadrant of the intersection of North Mine Street and Fifth Street in McCormick, South Carolina (Drawing 1). Crown Central Petroleum Corporation is currently operating a Fast Fare store on the subject property. Three 5000 to 7500 gallon capacity steel underground storage tanks (UST's) used for gasoline storage are located on site. The site is located in a predominantly commercially developed area with some residential development to the west along Fifth Street.

The population within the city limits of McCormick, South Carolina is currently reported to be approximately 1700.

Based on conversations with Mr. Edward Deason of the McCormick Commission of Public Works (CPW), city water is available in the site area and few private drinking water wells are used in the city. No private water supply wells were observed in the vicinity of the subject site. The McCormick CPW obtains its water supply from the Strom Thurmond Reservoir (formerly known as Clarks Hill Reservoir) located west and southwest of McCormick, South Carolina.

LAW ENGINEERING

2.0 SCOPE OF ASSESSMENT

Law Engineering conducted field testing and sampling, and laboratory testing in conjunction with our assessment. Data from our field and laboratory work was analyzed to develop the evaluations and recommendations presented in this report. The scope of services provided as part of our assessment is described in the following paragraphs.

2.1 Field Sampling and Testing

2.1.1 Soil Test Borings

Five soil test borings were drilled in conjunction with our current assessment. The boring locations were selected by Law Engineering based on the expected direction of groundwater flow inferred from site topography and USGS topographic information. The borings were sited in the field using a cloth tape and estimated right angles, referencing existing site features. As drilled boring locations and elevations were surveyed and referenced to a USGS established bench mark (R43) with an assigned elevation of 530.957 feet NGVD (National Geodetic Vertical Datum). Boring elevations and locations should be considered accurate only to the degree indicated by these methods. Boring locations are shown on Drawing 2, Appendix B.

The soil test borings were drilled using a truck-mounted drill rig employing 10.25-inch outside diameter hollow stem augers to advance the boreholes. Four shallow soil test borings (MW-1, MW-2, MW-4 and MW-5) were drilled to approximate depths ranging from 31 to 35 feet below ground surface. One deep soil test boring (MW-6) was drilled to an approximate depth of 60 feet below ground surface.

At assigned intervals the soil was tested and sampled by the standard penetration test performed in general accordance with ASTM D 1586. Standard penetration tests could not be performed in borings MW-2, MW-4, and MW-6 due to extremely hard soil conditions. Based on conversations with Mr. Howard Smith of Crown Petroleum Corporation, penetration sampling and OVA screening were waived for these borings. Representative portions of the test samples collected were classified in the field by a geologist. Test Boring Records presenting soil descriptions and penetration resistances are included in Appendix C. To minimize the potential for cross-contamination between borings, all downhole drilling equipment was steam-cleaned prior to drilling each boring.

2.1.2 Groundwater Monitoring Wells

Law Engineering obtained a monitoring well installation permit from the South Carolina Department of Health and Environmental Control (SCDHEC).

A 2-inch diameter Type II, PVC groundwater monitoring well was installed in each of the shallow boreholes. The shallow wells are designated MW-1, MW-2, MW-4 and MW-5. A 2-inch diameter Type III, PVC groundwater monitoring well was installed in the deep borehole. The Type III well is designated MW-6. Monitoring well construction procedures and details are provided in Appendix D.

After installation, the monitoring wells were developed, purged and sampled in accordance with the procedures included in Appendix D.

2.1.3 Field Testing and Measurements

Soil samples collected from borings MW-1 and MW-5 were placed in air-tight plastic bags and screened in the field for the presence of organic vapors using a Century 128, flame ionization; Organic Vapor Analyzer (OVA). The soil sample from each boring (MW-1 and MW-5) exhibiting the highest OVA reading, or a sample from the vicinity of the water table encountered at time of boring was selected for chemical analysis.

Soil samples were placed in laboratory prepared glass containers with teflon lined lids. The containers were marked with identifying numbers and immediately placed in a cooled sample container. The samples were shipped by overnight courier to Law Environmental National Laboratory in Kennesaw, Georgia for chemical analysis. Appropriate chain-of-custody records were maintained (Appendix F).

Groundwater elevation measurements were obtained at each monitoring well location to evaluate the groundwater flow direction at the subject site. Referenced groundwater elevations were determined by measuring the top of well casing relative to a nearby, established elevation, measuring the water level in the well and computing the referenced elevation of the groundwater at the time of measurement. Directions of groundwater flow were interpolated between wells by comparing the groundwater elevation at those locations considering the factors listed above. The results of our groundwater level measurements are provided in Table 2, Appendix A.

Groundwater samples were collected from the monitoring wells installed at the site for chemical analysis.

2.2 Laboratory Testing

Selected soil samples from MW-1 and MW-5 were tested in the laboratory for purgeable aromatic hydrocarbons (BTEX) by EPA Method 8020.

Groundwater samples collected from MW-2, MW-4, MW-5 and MW-6 were tested in the laboratory for purgeable aromatic hydrocarbons (BTEX, EPA Method 602). The groundwater sample collected from MW-1 was analyzed in the laboratory for total petroleum hydrocarbons (TPH, SFB Method 5030).

Groundwater samples were collected from MW-1, MW-2, MW-4 and MW-5 to represent conditions at the water table horizon. The groundwater sample collected from MW-6 is representative of deeper groundwater conditions within the partially weathered rock zones encountered at the site.

3.0 GEOLOGIC AND HYDROLOGIC CONDITIONS

3.1 Geologic Conditions

3.1.1 Area and Site Geology

The project site is located in the Piedmont Physiographic Province, an area underlain by igneous and metamorphic rocks. The topography in this area of the Piedmont is generally rolling with elevations ranging from 350 to 550 feet above mean sea level. The rolling terrain of the Peidmont Upland has been formed by dissecting streams, some of which have fairly steep profiles in the southern part of the area. However, the Piedmont Upland is interrupted by several erosional remnants of the Blue Ridge (locally Paris Mountain to the north) which rise above the rolling terrain.

The material encountered in this area are the residual product of in-place chemical weathering of rock which was similar to the rock presently underlying the site. In areas not altered by erosion or disturbed by the activities of man, the typical residuum profile consists of clayey materials near the surface, where weathering is more advanced, underlain by sandy silts and silty sands.

The boundary between residuum and rock is not sharply defined. A transitional zone termed "partially weathered rock" is normally found overlying the parent bedrock. Partially weathered rock is defined, for engineering purposes, as residual material with standard penetration resistances in excess of 100 blows per foot (bpf). Weathering is facilitated by fractures, joints and by the presence of less resistant rock types. Consequently, the profile of the partially weathered rock and hard rock is quite irregular and erratic, even over short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and zones of partially weathered rock within the mantle of residuum, well above the general bedrock level.

3.1.2 Subsurface Soil Conditions

The borings generally encountered 2 to 3 inches of asphalt underlain by residual soil and partially weathered rock. The residual soil extended to the termination of boring in MW-5 and to a depth of approximately 6.5 feet below ground surface in boring MW-1.

The residual soil generally consisted of silty clay and clayey silt. The partially weathered rock encountered in each of the borings sampled as silty clay or clayey silt.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records (Appendix C) contain detailed information recorded at each boring location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples by a geologist. The lines designating the interfaces between various strata represent approximate boundaries. The transition between strata may be gradual.

3.2 Hydrologic Conditions

3.2.1 Area and Site Surface Drainage

A review of the McCormick, South Carolina USGS 7.5-minute quadrangle indicates that the site area is dominated by a low ridge or plateau that generally follows the alignment of Fifth Street. The ridge extends from a low ridge that runs generally northeastward following the alignment of the Seaboard Coastline Railroad.

Areas located northwest of Fifth Street gradually slope towards, and are expected to drain, northwestward into Baker Creek. Areas located south of Fifth Street slope gradually towards, and are expected to drain, southeastward into Hawe Creek.

The subject site lies along the southeastern edge of the ridge, with topographic relief on the order of 3 to 5 feet across the property. The site slopes gradually towards, and is expected to drain, southeastward toward the intersection of South Carolina Highway 28 and Fifth Street. We also note that surface drainage from the subject site and adjacent properties could be altered by curbs, gutters and storm drain systems.

3.2.2 Expected Area Subsurface Drainage

Hydrogeology, the study of groundwater movement through soil and rock, is dependent upon understanding the effects of geologic features, such as faults, folds or foliation planes on groundwater flow. In the absence of information to the contrary, it is logical to assume that near-surface groundwater flow in the vicinity of the site is typically a subdued replica of the surface topography. Groundwater generally flows toward local drainage features that have eroded deeply enough to intersect the water table, thus creating a discharge point for groundwater.

Based on this assumption, our interpretation of the topographic maps, and the on-site visual observations, subsurface drainage from the subject site would be expected to flow southeastward toward Hawe Creek.

3.2.3 Site Groundwater Conditions

Groundwater was encountered at approximately 22 to 24 feet below ground surface in the borings at the time of drilling. The measured groundwater depths correspond to elevations ranging from approximately +508 ft. at the western portion of the site to +506 ft. near the eastern portion of the site.

The calculated groundwater flow direction is generally to the east as indicated on the water table contour map (Drawing 5). The data points (groundwater elevations in monitoring wells) used to determine the direction of flow are summarized in Table 2. Hydraulic gradients are determined by dividing the difference in groundwater elevation at two locations by the horizontal distance between the two locations in the same general direction of groundwater flow. Computed hydraulic gradients at the site range from 0.005 to 0.014 feet/foot.

Groundwater levels may fluctuate several feet with seasonal and rainfall variations, and with changes in the water level of adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring. The lowest occur in late summer and fall.

4.0 CONTAMINATION ASSESSMENT RESULTS

4.1 Soil Contamination

OVA field screening of soil samples detected relatively high concentrations of organic vapors in borings MW-1 and MW-5 adjacent to the UST's location. In MW-1, the concentrations ranged from 10 parts per million (ppm) at 16 feet to greater than 1000 ppm at 7 feet, and from 17 to 32 feet. In MW-5, the concentrations ranged from 50 ppm at 15 feet to greater than 1000 ppm at 25 and 35 feet.

The chemical analysis performed on the soil samples detected 1,911,000 parts per billion (ppb) in MW-1 and 51.5 ppb in MW-5 of total BTEX. Laboratory chemical analysis results are attached in Appendix F.

4.2 Groundwater Contamination

The results of chemical analysis performed during this phase of the assessment indicate that groundwater has been contaminated by gasoline constituents. A TPH concentration of 78% was detected in well MW-1. Total BTEX concentrations detected in the vicinity of the water table horizon ranged from 94,900 ppb in MW-4 to 237,000 ppb in MW-2. The total BTEX concentration detected in MW-6 from the partially weathered rock zone was 14,100 ppb. A summary of the constituents detected in the groundwater samples is presented on Table 1. A contour map of total BTEX concentrations is presented on Drawing 3. Laboratory chemical analysis results are attached in Appendix E.

Because of the high concentration of TPH and BTEX constituents in groundwater, the presence of separate phase hydrocarbon product was suspected. After allowing groundwater levels to stabilize in the wells for several weeks, the presence of hydrocarbon product was detected in MW-1, MW-2, MW-4, and MW-5. The depth of apparent product in those wells is indicated below, and in Drawing 4.

Well No.	Detected Depth of Product
MW-1	5 feet
MW-2	2 feet
MW-4	2 feet
MW-5	0.6 feet

Separate phase hydrocarbon was not observed in the Type III well, MW-6.

4.3 Evaluations

The results of our assessment indicate that significant petroleum hydrocarbon contamination of soil and groundwater has occurred. Our review of the data indicates that the contamination

is likely the result of leaks from the on-site underground storage tanks and/or associated piping.

The results also indicate that the contamination has migrated downward within the shallow aquifer.

4.4 Recommendations

Based on our experience with similar projects, we expect that the South Carolina Department of Health and Environmental Control will require further assessment and remediation. We recommend that development of the final Corrective Action Plans and remediation designs be conducted in accordance with the "Guidance Manual for Industrial Wastewater Division, Permitting Requirements for Hydrocarbon Contamination Groundwater Remediation Projects". A copy of the Manual is included in Appendix F.

1. Installation of separate phase hydrocarbon recovery wells and pumps at the site to recover free product;

2. Installation of three to five permanent shallow monitoring wells to assess the horizontal extent of groundwater contamination at the site;

3. Install two Type III deep monitoring wells to assess the vertical extent of groundwater contamination at the site;

4. Perform borehole permeability (slug) tests at selected monitoring well locations to evaluate the hydraulic conductivity and ground-water flow rate within the shallow aquifer;

5. Establish a groundwater monitoring and sampling program to define the hydrogeologic and water quality conditions and seasonal trends at the site prior to initiating remedial action. The monitoring program should include quarterly groundwater sampling and analysis, and level measurements of water at the site monitoring wells for a period of one year;

6. Analyze groundwater samples for purgeable aromatic hydrocarbons (BTEX and MTBE, EPA Method 602).

At the request of Crown Central Petroleum, Law Engineering can prepare a remedial action plan for recovery of separate phase hydrocarbon from the groundwater, and a Phase II assessment plan for the dissolved constituents in the groundwater underlying the site and migrating offsite.

5.0 BASES AND LIMITATION OF ASSESSMENT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessments and waste-management projects of this type. Our evaluation of site conditions has been based on our understanding of the site and project information and the data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpolation of subsurface data between the borings.

Regardless of the thoroughness of an environmental site assessment, there is always the possibility that conditions between borings will be different from that at the specific boring locations due to the variability of subsurface conditions. Therefore, it was not possible to identify all conceivable forms of contamination at this site. The primary objective was to perform sufficient work to determine if petroleum contamination exists in the soils and groundwater at the subject site. It was not the purpose of this evaluation to define the degree or extent of contamination adjacent to the property.

APPENDIX A

TABLES

TABLE 1
Chemical Analysis Results - Water Samples
Crown Station S.C. - 576
McCormick, South Carolina
Law Engineering Job Number 492-1-4051-01

Parameter	MW-1	MW-2	MW-4	MW-5	MW-6	SCDHEC MCL*	EPA MCL
Purgeable Aromatics (ppb)							
Benzene	NT	43,000	29,000	30,000	2,700	5	5
Ethylbenzene	NT	18,000	4,900	7,000	1,000	680	700
Toluene	NT	88,000	37,000	40,000	5,000	2000	2000
Total Xylenes	NT	88,000	24,000	36,000	5,400	440	10,000
Total BTEX	NT	237,000	94,900	113,000	14,100	NA	NA
Total Petroleum Hydrocarbons (%)	78	NT	NT	NT	NT	NE	NE

* South Carolina Maximum Contaminant Level based on Baseline Fuel Clean-up Objectives dated 1/18/90
MCL based on Federal Drinking Water Standards and Health Advisories dated December 1988
NA = Not Applicable
NE = Not Established
NT = Not Tested
ppb= Parts Per Billion

TABLE 2
Groundwater Elevation Data
Crown Station S.C. - 576
McCormick, South Carolina
Law Engineering Job Number 492-1-4051-01

Well Number	Top of Casing Elevation*	Depth of Water	Ground-Water Elevation*
MW-1	530.21	22.5	507.7
MW-2	528.80	22.3	506.5
MW-4	531.37	22.9	508.5
MW-5	530.83	22.8	508.0
MW-6	529.45	23.5	506.0

* Referenced to a USGS established bench mark (R43) datum.

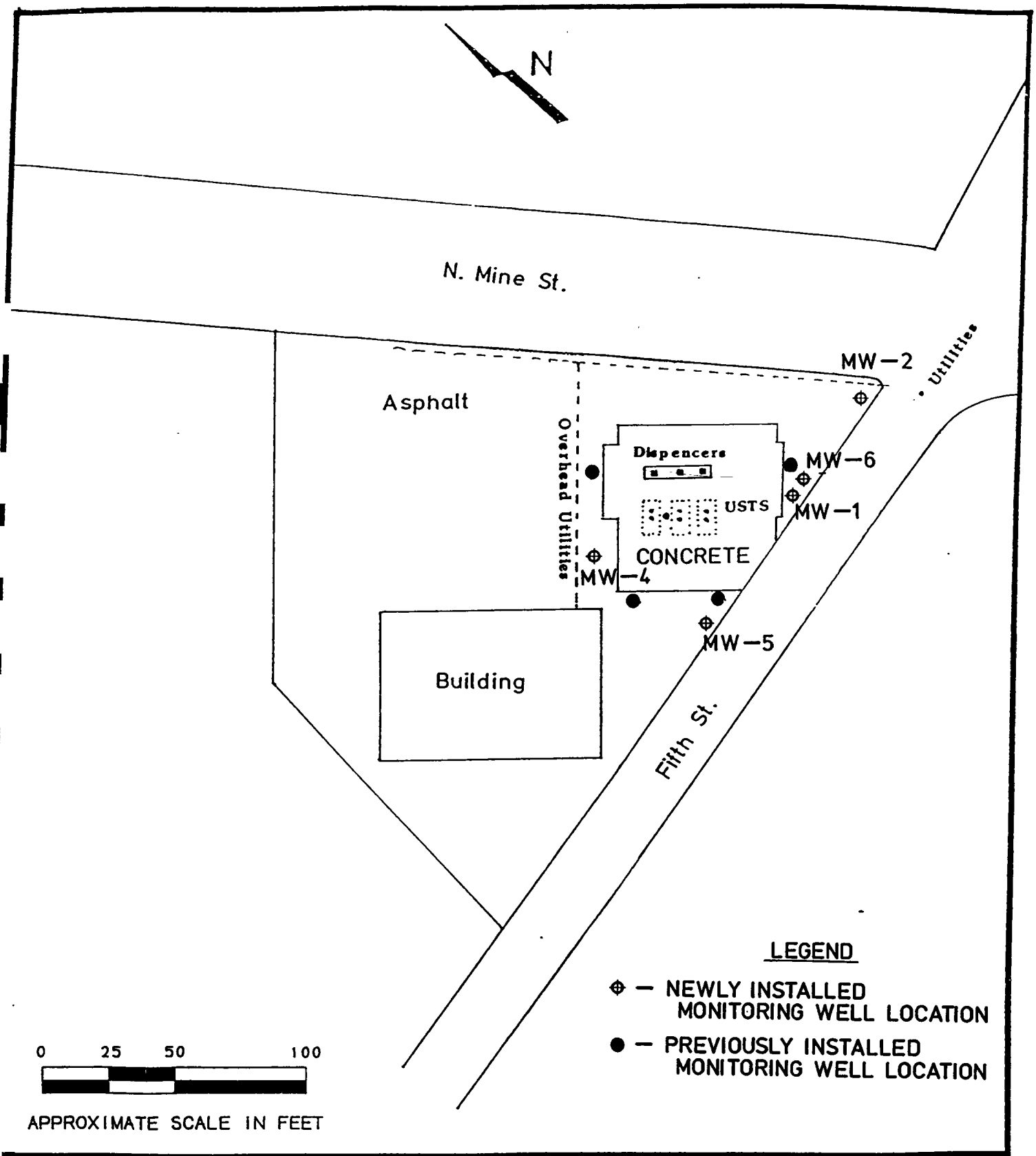
Feet below top of casing as measured on April 16, 1991.

APPENDIX B

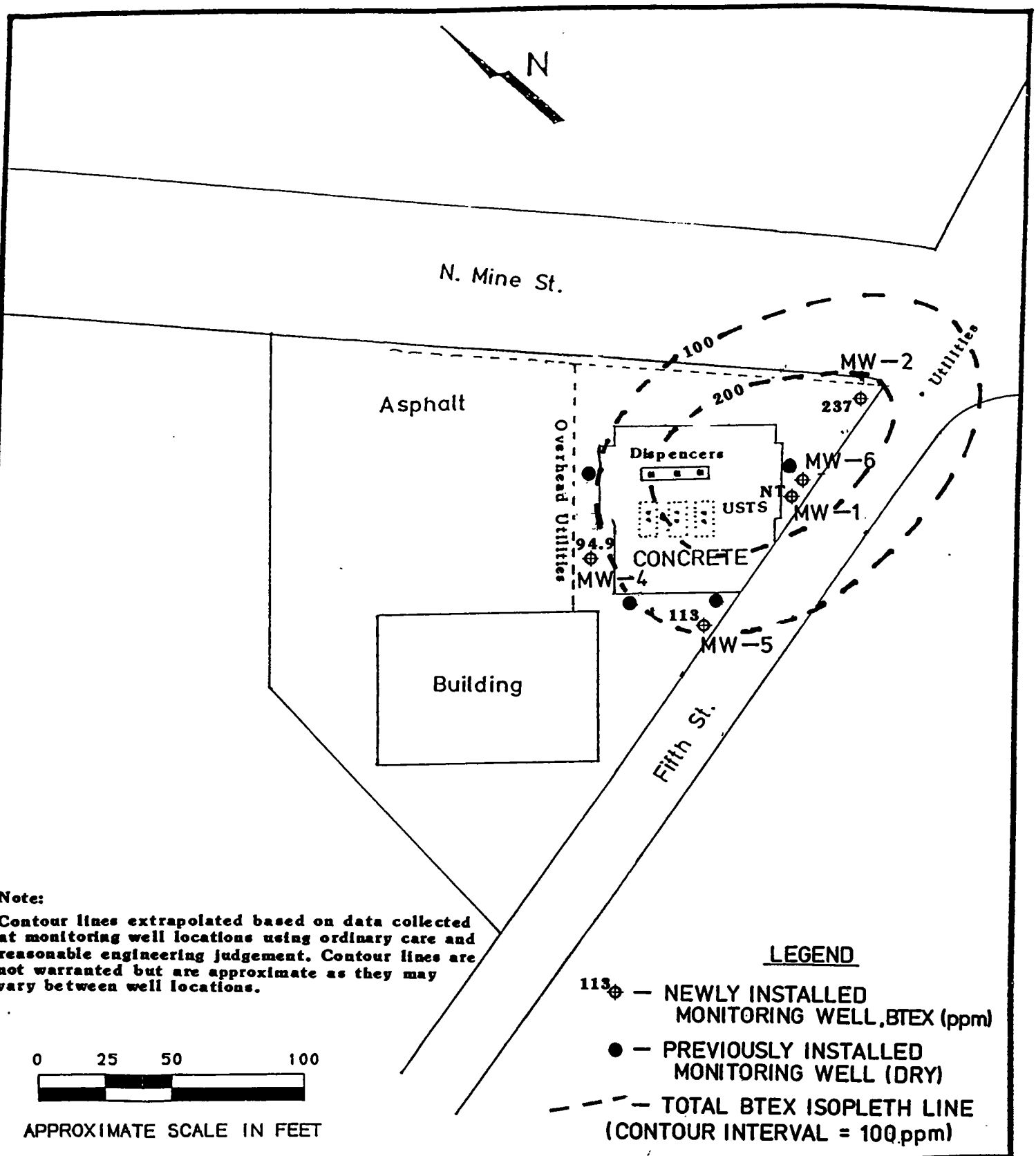
DRAWINGS

REF: McCormick Quadrangle South Carolina 7.5 Minute Series (USGS) Dated 1986

LAW ENGINEERING, INC. COLUMBIA, SOUTH CAROLINA	Site Location Map Crown Station S.C.–576 McCormick, South Carolina			
Crown Central Petroleum Corporation Baltimore, Maryland 492–1–4051–01	DWN. BY	JRG	2/91	SCALE: As Shown
	CKD. BY	JPK	2/91	DRAWING NO. 1
	APPR'D.			



LAW ENGINEERING, INC. COLUMBIA, SOUTH CAROLINA	Site Plan Crown Station S.C.—576 McCormick, South Carolina			
Crown Central Petroleum Corporation Baltimore, Maryland 492—1—4051—01	DWN. BY	JRG	2/91	SCALE: As Shown
	CKD. BY	JPK	2/91	DRAWING NO. 2
	APPR'D.			



Note:

Contour lines extrapolated based on data collected at monitoring well locations using ordinary care and reasonable engineering judgement. Contour lines are not warranted but are approximate as they may vary between well locations.

0 25 50 100

APPROXIMATE SCALE IN FEET

LEGEND

113 ⊕ — NEWLY INSTALLED MONITORING WELL, BTEX (ppm)

● — PREVIOUSLY INSTALLED MONITORING WELL (DRY)

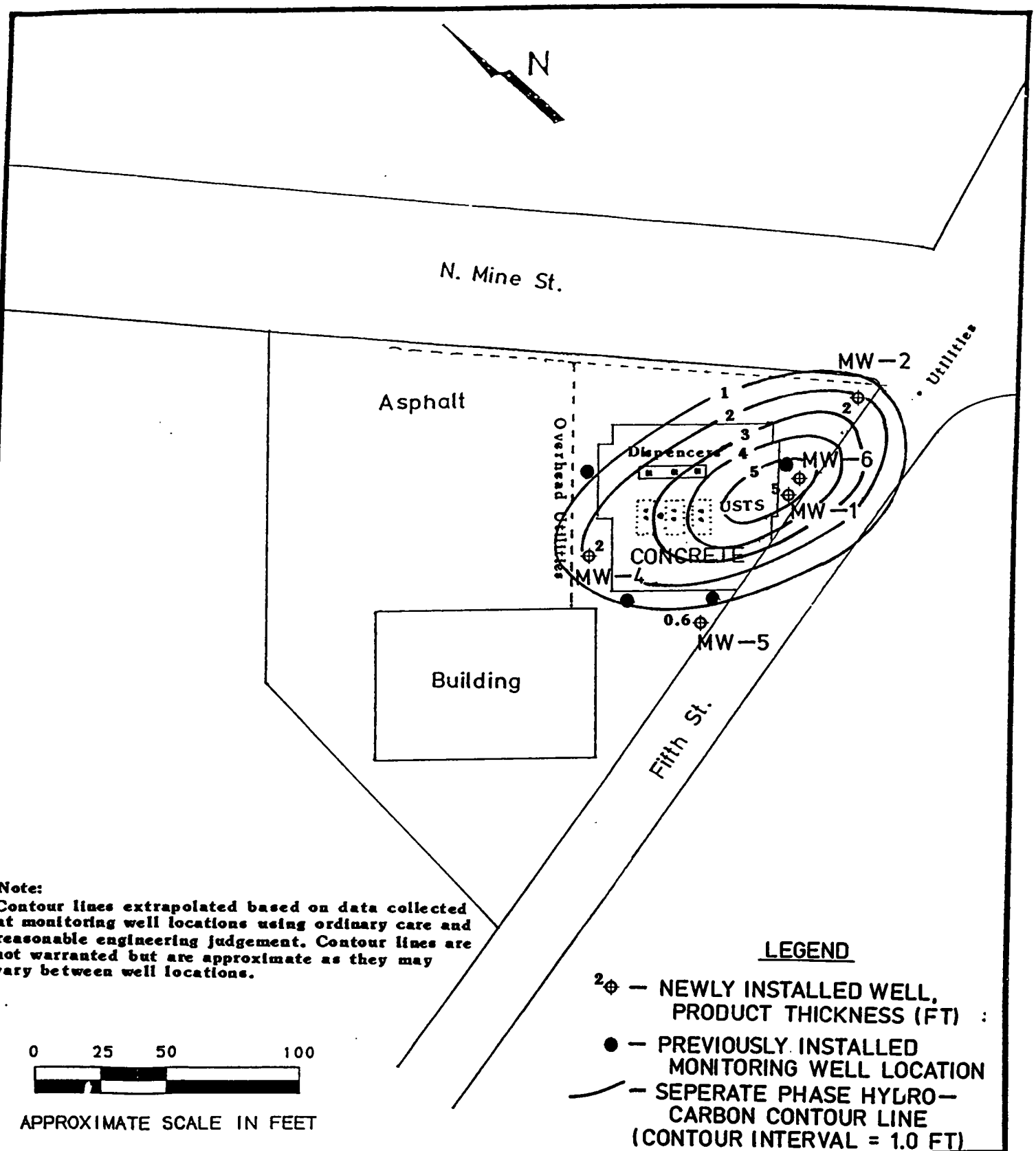
— — — TOTAL BTEX ISOPLETH LINE (CONTOUR INTERVAL = 100 ppm)

LAW ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA

Crown Central Petroleum Corporation
Baltimore, Maryland
492-1-4051-01

Total BTEX Isopleth Map
Crown Station S.C.-576
McCormick, South Carolina

DWN. BY	JRG	2/91	SCALE: As Shown
CKD. BY	JPK	2/91	DRAWING NO. 3
APPR'D.			



Note:
Contour lines extrapolated based on data collected at monitoring well locations using ordinary care and reasonable engineering judgement. Contour lines are not warranted but are approximate as they may vary between well locations.

LEGEND

$^{2}\oplus$ — NEWLY INSTALLED WELL, PRODUCT THICKNESS (FT) :

● — PREVIOUSLY INSTALLED MONITORING WELL LOCATION

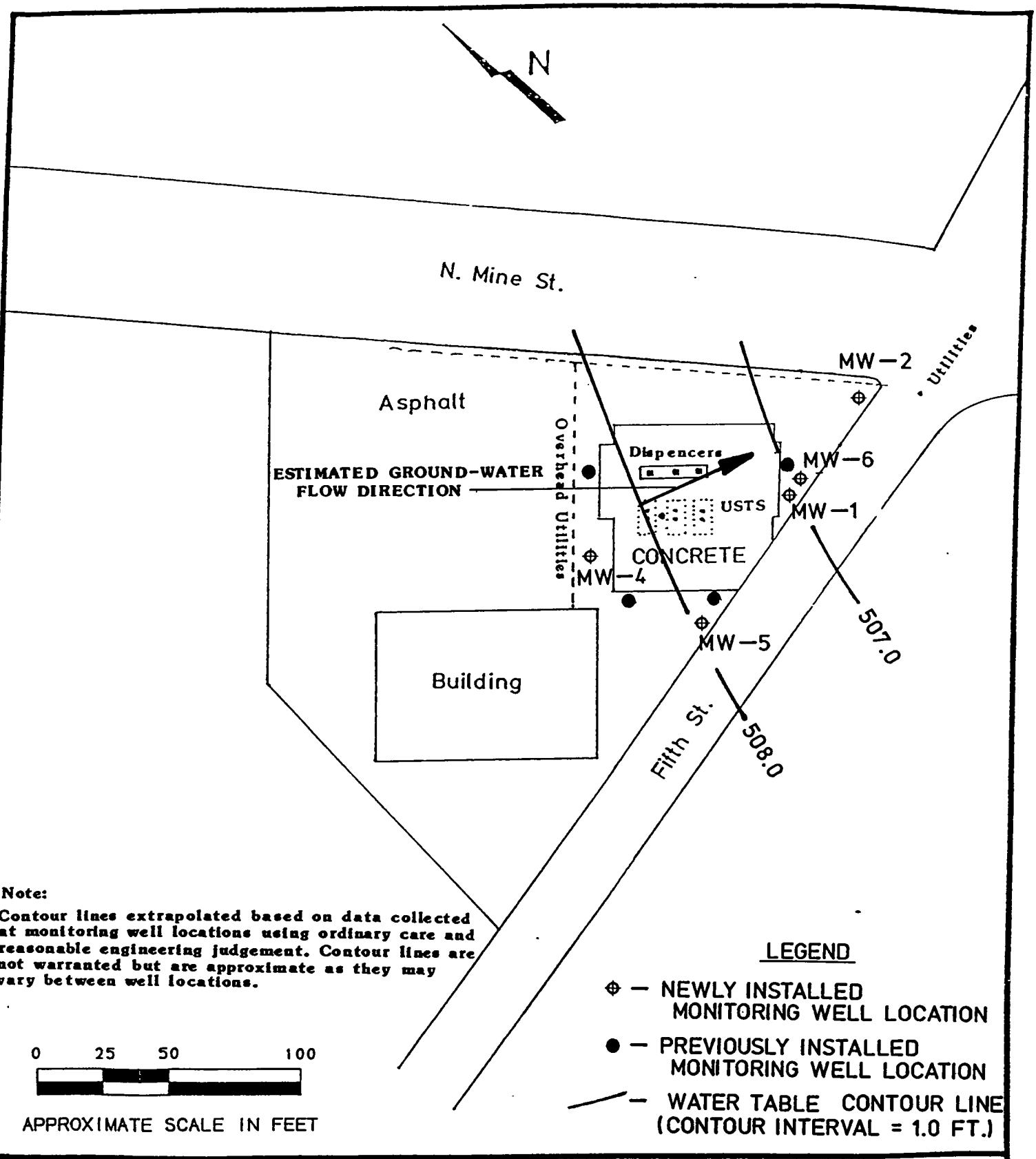
— SEPERATE PHASE HYDRO-CARBON CONTOUR LINE (CONTOUR INTERVAL = 1.0 FT)

LAW ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA

Seperate Phase Hydrocarbon Isopach Map
Crown Station S.C.-576
McCormick, South Carolina

Crown Central Petroleum Corporation
Baltimore, Maryland
492-1-4051-01

DWN. BY	JRG	2/91	SCALE: As Shown
CKD. BY	JPK	2/91	DRAWING NO. 4
APPR'D.			



Note:
Contour lines extrapolated based on data collected at monitoring well locations using ordinary care and reasonable engineering judgement. Contour lines are not warranted but are approximate as they may vary between well locations.

LEGEND

⊕ — NEWLY INSTALLED MONITORING WELL LOCATION

● — PREVIOUSLY INSTALLED MONITORING WELL LOCATION

— WATER TABLE CONTOUR LINE (CONTOUR INTERVAL = 1.0 FT.)

LAW ENGINEERING, INC.
COLUMBIA, SOUTH CAROLINA

Water Table Contour Map
Crown Station S.C.—576
McCormick, South Carolina

Crown Central Petroleum Corporation
Baltimore, Maryland
492—1—4051—01

DWN. BY	JRG	2/91	SCALE: As Shown
CKD. BY	JPK	2/91	DRAWING NO.
APPR'D.			5

APPENDIX C

SOIL TEST BORINGS

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	NO. OF BLOWS, N	RELATIVE DENSITY
SANDS:	0-4	Very Loose
	5-10	Loose
	11-30	Firm
	31-50	Dense
	OVER 50	Very Dense

	CONSISTENCY	
SILTS & CLAYS:	0-2	Very Soft
	3-4	Soft
	5-8	Firm
	9-15	Stiff
	16-30	Very stiff
	31-50	Hard
	OVER 50	Very Hard

PARTICLE SIZE IDENTIFICATION

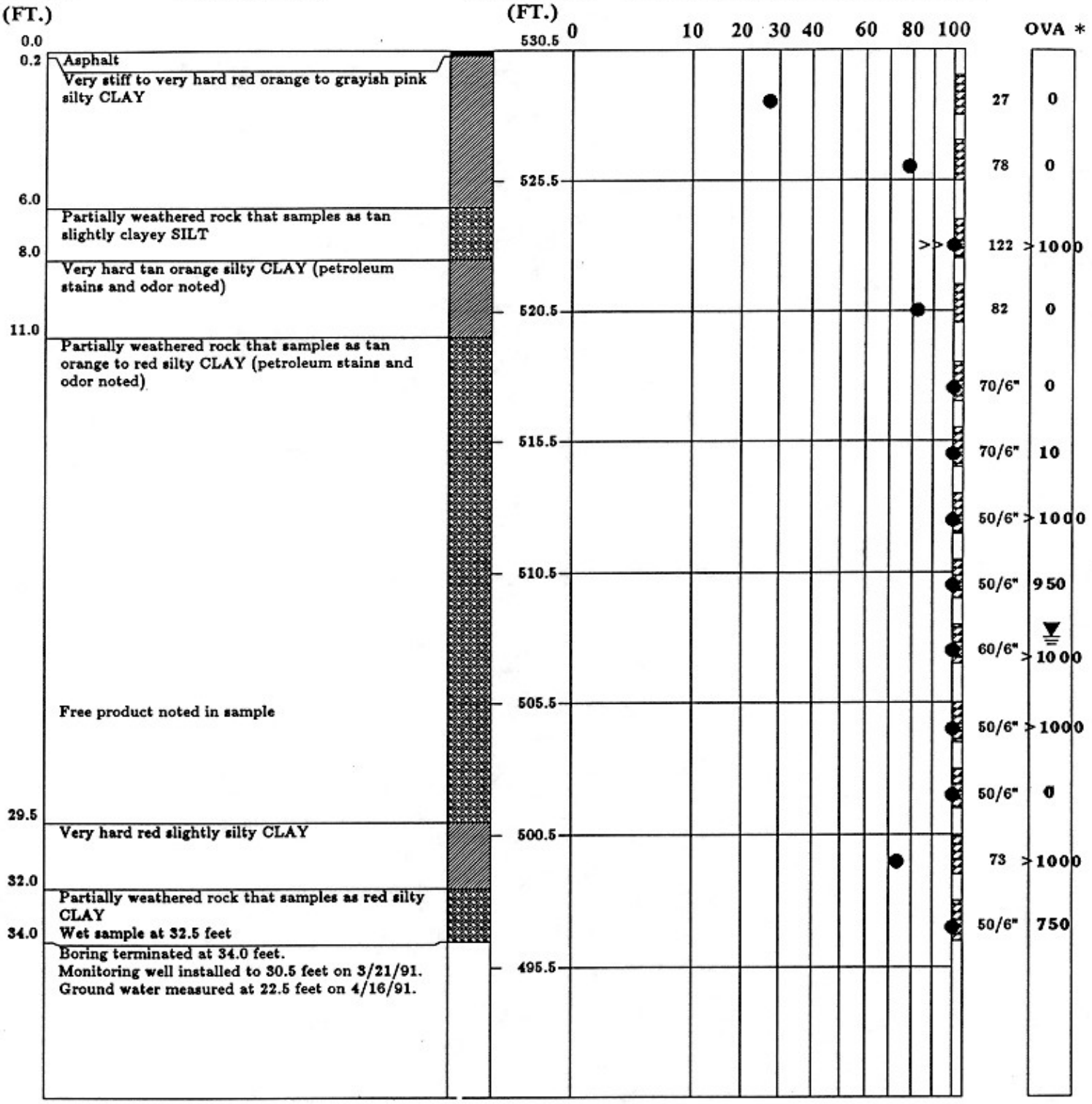
BOULDERS:		Greater than 300 mm
COBBLES:		75 mm to 300 mm
GRAVEL:	Coarse -	19.0 mm to 75 mm
	Fine -	4.75 mm to 19.0 mm
SANDS:	Coarse -	2.00 mm to 4.75 mm
	Medium -	0.425 mm to 2.00 mm
	Fine -	0.075 mm to 0.425 mm
SILTS & CLAYS:		Less than 0.075 mm

KEY TO DRILLING SYMBOLS

- Undisturbed Sample
- Split Spoon Sample
- Water Table 24 HR.
- Water Table at Time of Drilling
- M=82% Moisture Content
- ◀ Loss of Drilling Water

KEY TO SOIL CLASSIFICATIONS

- **FILL**
- **CL** - Low plasticity inorganic clays
- **CH** - High plasticity inorganic clays
- **ML** - Low plasticity inorganic silts
- **MH** - High plasticity inorganic silts
- **SP** - Poorly graded sands
- **SW** - Well graded sands
- **GP** - Poorly graded gravels
- **PARTIALLY WEATHERED ROCK** - A transitional material between soil and rock which retains the relict structure of the parent rock
- **GW** -Well graded gravels
- **OL** - Low plasticity organic silts and clays
- **OH** - High plasticity organic silts and clays
- **SM** - Silty sands
- **GM** - Silty gravels
- **SC** - Clayey sands
- **GC** - Clayey gravels
- **SP-SM** - Typical Dual Classification



REMARKS:

* Organic Vapor Analyzer (OVA) measurements in parts per million (ppm).

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

BORING NUMBER	MW-1
DATE DRILLED	March 21, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 1	

LAW ENGINEERING

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)
0.0		529.1
0.2	Asphalt Partially weathered rock that samples as reddish pink slightly silty sandy CLAY	
		524.1
		519.1
		514.1
		509.1
		504.1
		499.1
32.0	Boring terminated at 32.0 feet. Monitoring well installed to 29.1 feet on 3/21/91. Ground water measured at 22.3 feet on 4/16/91.	494.1

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100

REMARKS:

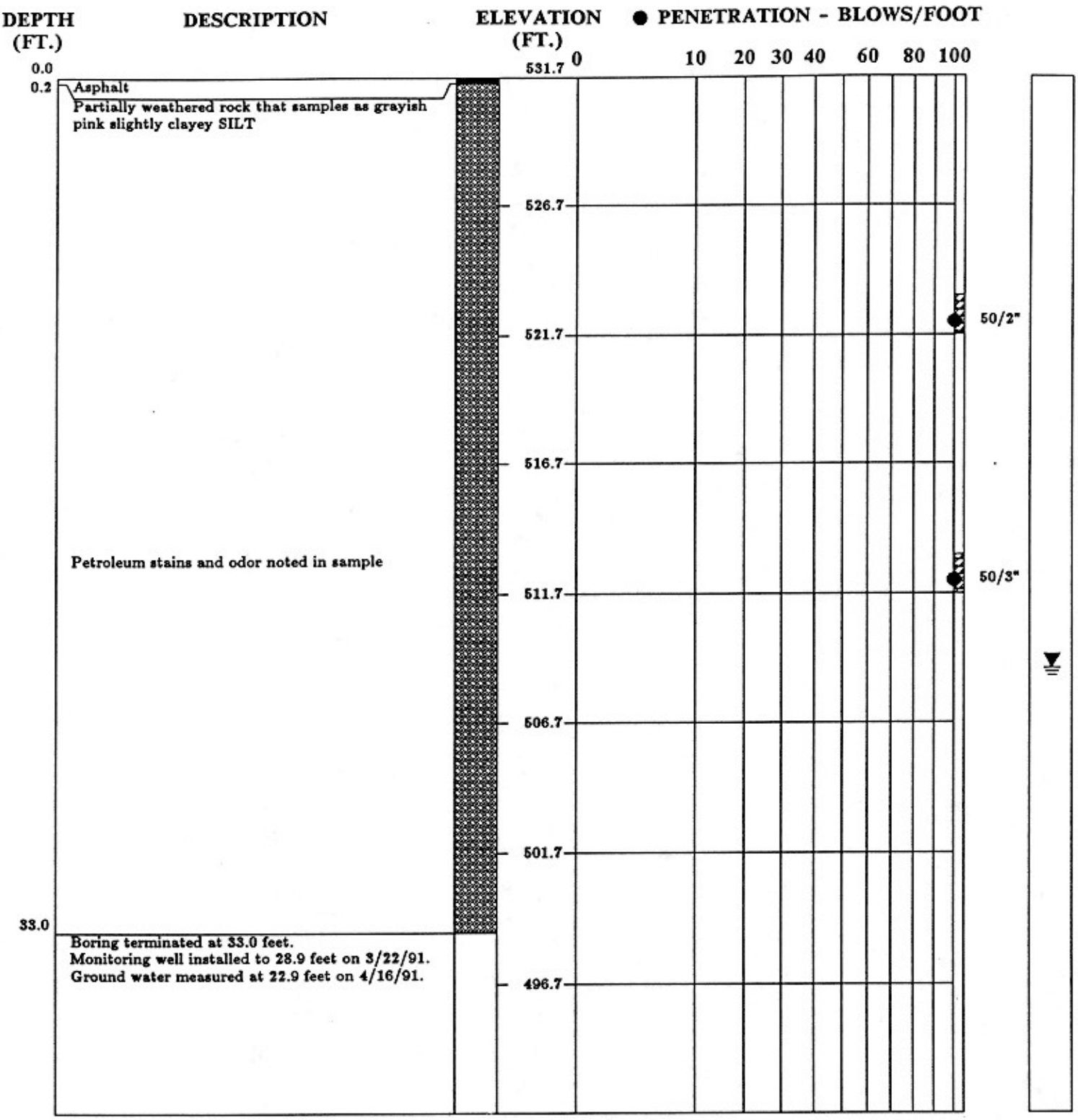
No split spoon samples or Organic Vapor Analyzer (OVA) measurements obtained due to hardness of material encountered. Material described from auger cuttings.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

BORING NUMBER	MW-2
DATE DRILLED	March 21, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 1	

LAW ENGINEERING



REMARKS:

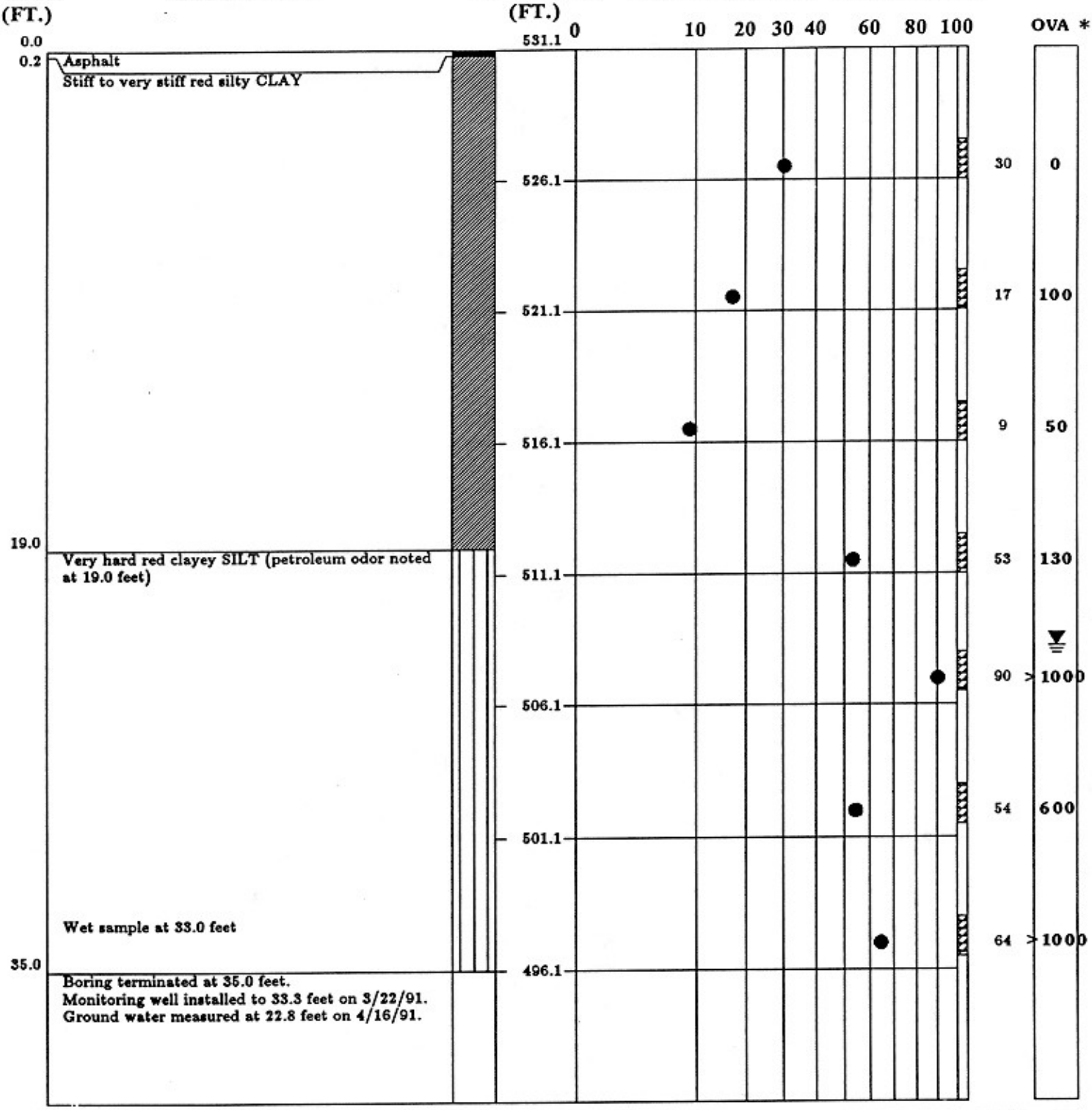
No split spoon samples or Organic Vapor Analyzer (OVA) measurements obtained due to hardness of material encountered.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

BORING NUMBER	MW-4
DATE DRILLED	March 22, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 1	

LAW ENGINEERING



REMARKS:

* Organic Vapor Analyzer (OVA) measurements in parts per million (ppm).

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

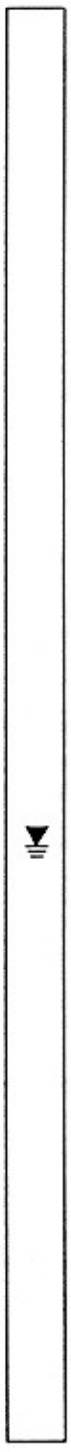
BORING NUMBER	MW-5
DATE DRILLED	March 22, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 1	

LAW ENGINEERING

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)
0.0		529.8
0.2	Asphalt Partially weathered rock that samples as grayish pink slightly sandy silty CLAY	
		524.8
		519.8
		514.8
		509.8
		504.8
		499.8
		494.8

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100



REMARKS:

No split spoon samples or Organic Vapor Analyzer (OVA) measurements obtained due to hardness of material encountered. Material described from auger cuttings.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

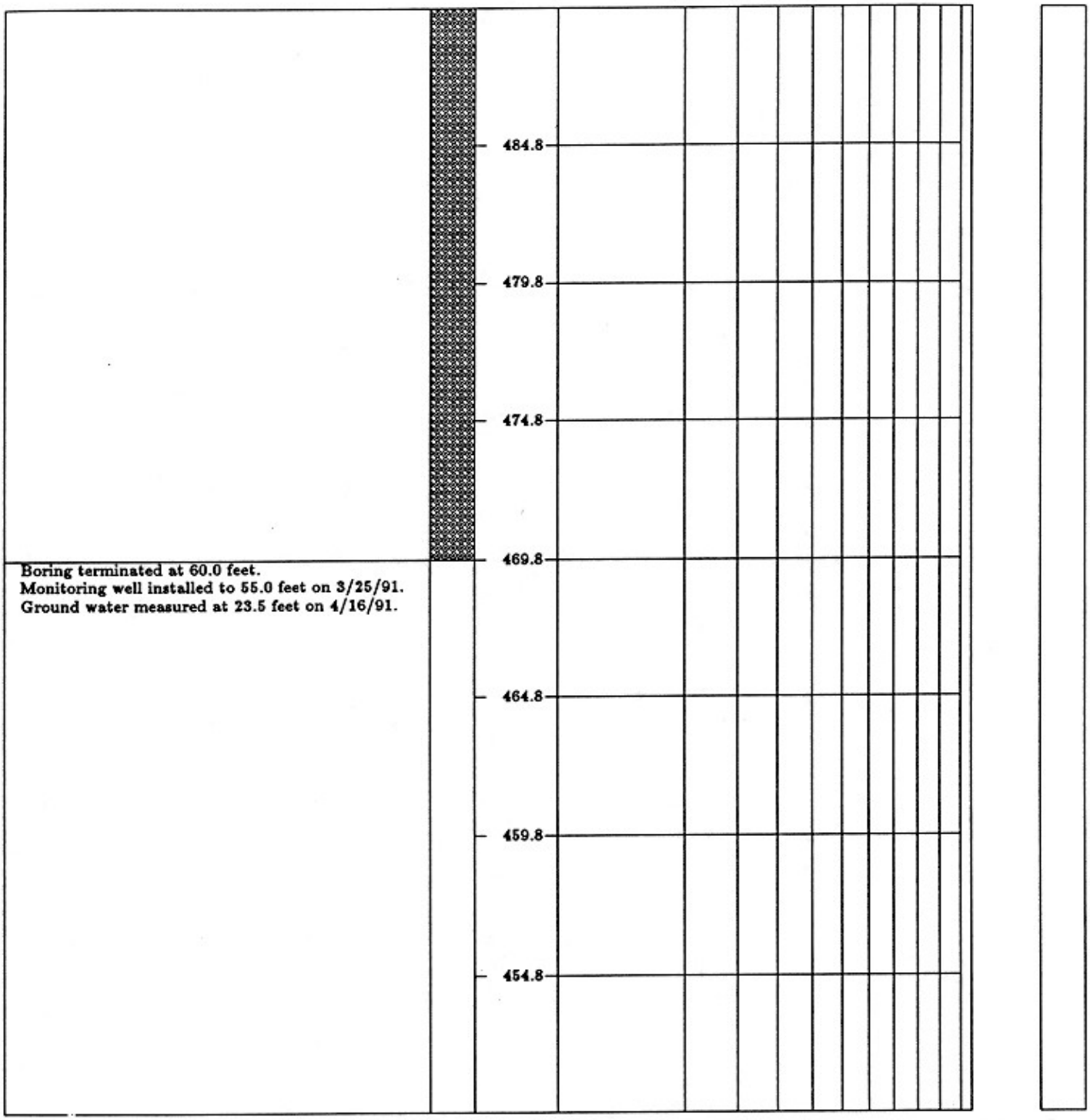
BORING NUMBER	MW-6
DATE DRILLED	March 25, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 2	

LAW ENGINEERING

DEPTH (FT.)	DESCRIPTION	ELEVATION (FT.)
60.0	Boring terminated at 60.0 feet. Monitoring well installed to 55.0 feet on 3/25/91. Ground water measured at 23.5 feet on 4/16/91.	484.8 479.8 474.8 469.8 464.8 459.8 454.8

● PENETRATION - BLOWS/FOOT

0 10 20 30 40 60 80 100



REMARKS:

No split spoon samples or Organic Vapor Analyzer (OVA) measurements obtained due to hardness of material encountered. Material described from auger cuttings.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

BORING NUMBER	MW-6
DATE DRILLED	March 25, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 2 OF 2	

LAW ENGINEERING

APPENDIX D

GROUNDWATER MONITORING WELLS

Monitoring Well Construction Procedures

Ground-water monitoring wells MW-1, MW-2, MW-4 and MW-5 were installed as Type II wells. The Type II wells consist of 2-inch diameter PVC pipe (Schedule 40 with flush-threaded joints) inserted into a 10.25-inch diameter augered borehole. The bottom 10 foot section of each well is a manufactured well screen with 0.010-inch wide slots. The well screen was set to intercept the saturated/unsaturated zone interface encountered at the time of drilling. Washed sand backfill was placed around the outside of the pipe to 1-2 feet above the top of the well screen. The sand backfill is used to stabilize the formation and to help yield a less turbid ground-water sample.

Ground-water monitoring well MW-6 was installed as a Type III well. The Type III well consists of a 10.25-inch diameter borehole advanced to the depth of the confining unit. A four-inch diameter PVC pipe was installed to the termination of the borehole. The annular space between the hole and the 4-inch PVC pipe was tremmie grouted with a cement grout to near ground surface. The grout was allowed to set-up for 24 hours. After the grout around the 4-inch PVC casing was set, the boring was advanced through the casing and the underlying formation using mud rotary techniques. A 2-inch diameter PVC casing with a 10-foot well screen at the bottom was installed through the 4-inch casing and the borehole.

A minimum one-foot thick bentonite seal was installed on top of the sand backfill to seal the monitoring well at the desired level. The well annulus was then grouted to the surface with a cement/bentonite grout mixture. A lockable PVC cap and a protective flush-mounted steel cover were placed over each well.

Monitoring Well Purging and Sampling Procedures

Monitoring wells MW-1, MW-2, MW-4, MW-5 and MW-6 were purged prior to sample collection to remove any stagnant water from the well, thereby ensuring that the samples collected are representative of the ground-water quality in the vicinity of each well. For wells that recovered quickly, a minimum of three volumes of water were evacuated. Wells that were evacuated to dryness with less than three well volumes being removed were sampled as soon as the well had recovered enough to yield sufficient volume for a sample

The wells were purged using a bailer constructed of a 3-foot long, 1.6-inch diameter teflon pipe attached to an unused polypropylene cord. To minimize the potential for cross-contamination between wells, the bailer was cleaned before purging and sampling each well with the following cleaning procedure:

1. Laboratory soap and distilled water rinse;

2. Dilute hydrochloric acid rinse;

3. Pesticide grade propanol rinse; and

4. Distilled water rinse.

Following purging of the wells, the ground-water samples were collected using a clean teflon bailer attached to an unused polypropylene cord. The samples were placed in 40-ml VOA vials with teflon lids. Samples collected in the vials were preserved with hydrochloric acid (HCL) for volatile analysis.

All ground-water samples were marked with identifying number, immediately placed in the sample coolers, secured, and maintained at 4°C. These samples were shipped in cooled containers by overnight courier to Law Environmental National Laboratories in Kennesaw, Georgia for analysis. Appropriate chain-of-custody records were maintained (see Appendix F)

JOB NAME Crown Station S.C. - 576

JOB NUMBER 492-1-4051-01

WELL NUMBER MW-1

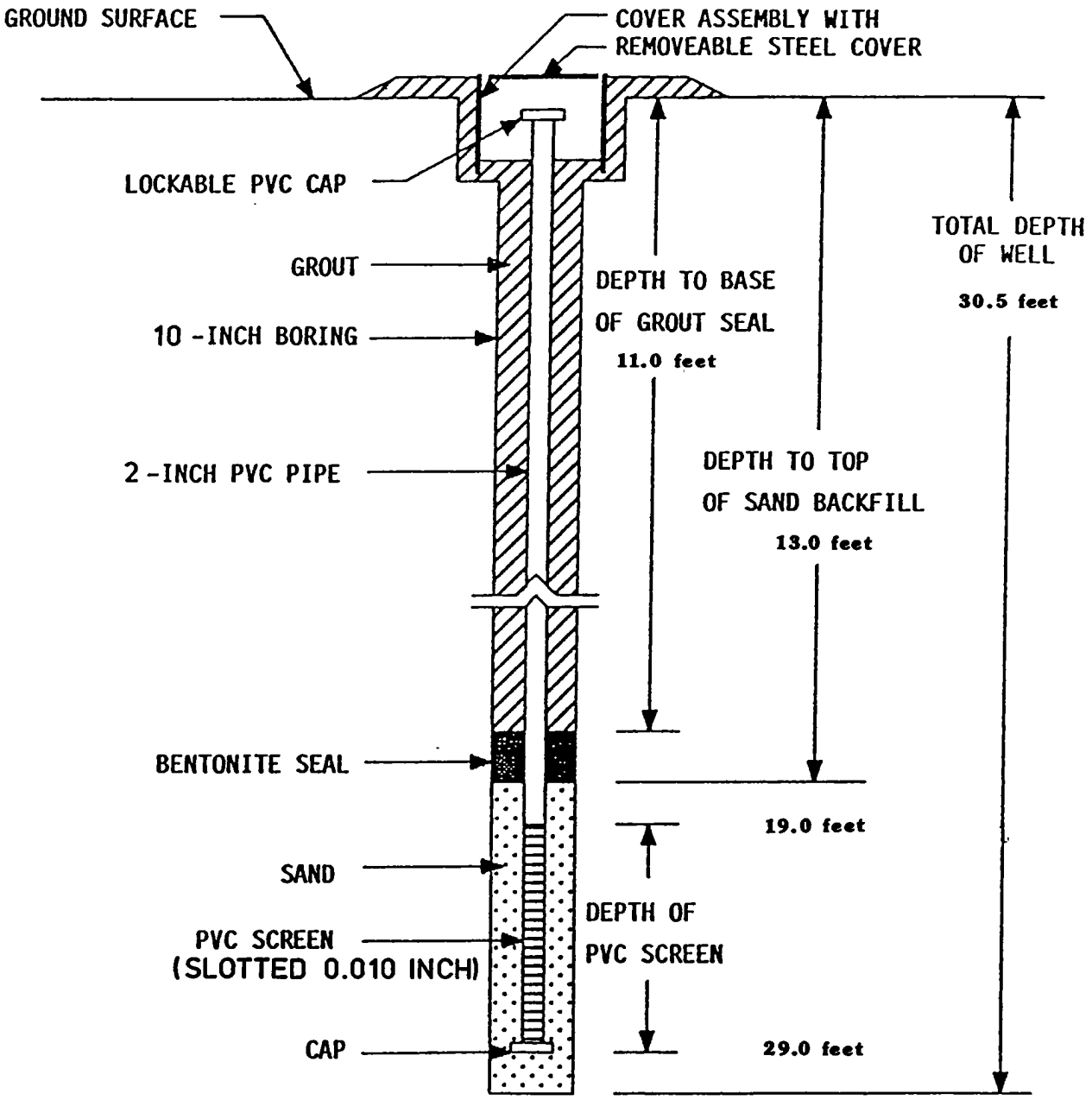
GROUND SURFACE ELEVATION 530.51 feet

LOCATION McCormick, S.C.

MEASURING POINT ELEVATION 530.21 feet

INSTALLATION DATE 3/21/91

LATITUDE 33°54'47" LONGITUDE 82°17'52"



LAW ENGINEERING

MONITORING WELL
INSTALLATION RECORD
MW-1

JOB NAME Crown Station S.C. - 576

JOB NUMBER 492-1-4051-01

WELL NUMBER MW-2

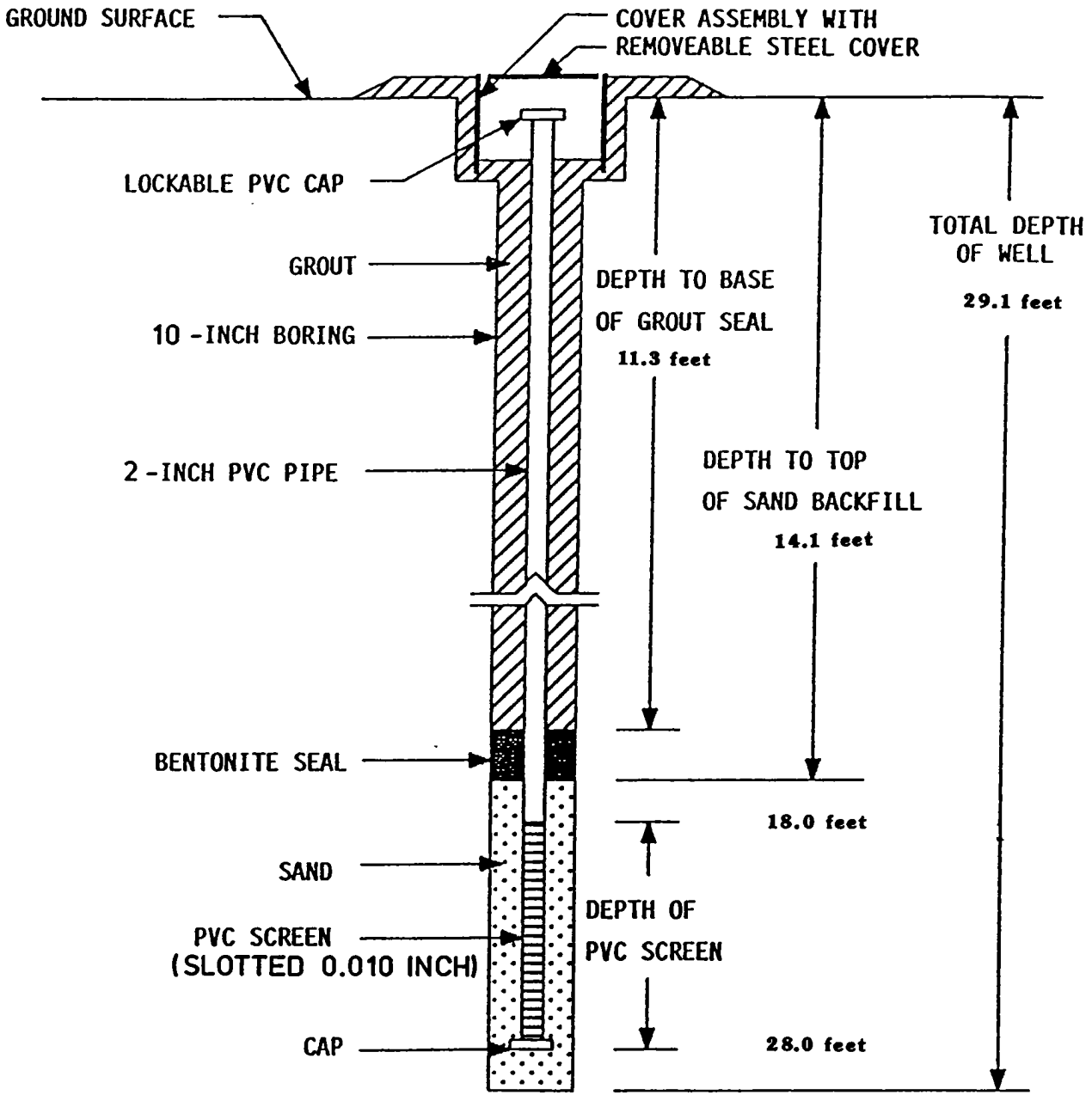
GROUND SURFACE ELEVATION 529.10 feet

LOCATION McCormick, S.C.

MEASURING POINT ELEVATION 528.80 feet

INSTALLATION DATE 3/21/91

LATITUDE 33°54'47" LONGITUDE 82°17'51"



LAW ENGINEERING

MONITORING WELL
INSTALLATION RECORD
MW-2

JOB NAME Crown Station S.C. - 576

JOB NUMBER 492-1-4051-01

WELL NUMBER MW-4

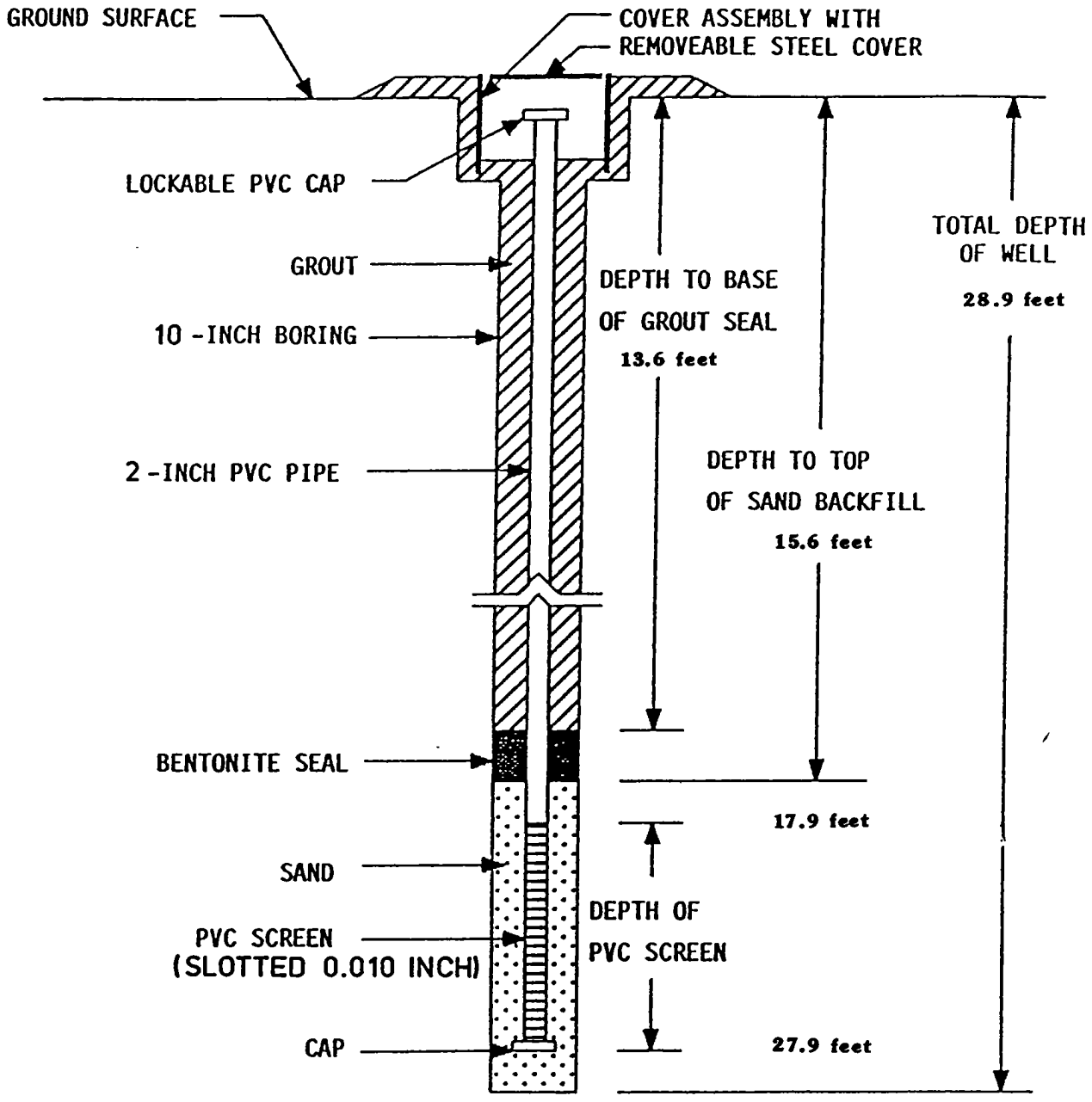
GROUND SURFACE ELEVATION 531.67 feet

LOCATION McCormick, S.C.

MEASURING POINT ELEVATION 531.37 feet

INSTALLATION DATE 3/22/91

LATITUDE 33°54'48" LONGITUDE 82°17'53"



LAW ENGINEERING

MONITORING WELL
INSTALLATION RECORD
MW-4

JOB NAME Crown Station S.C. - 576

JOB NUMBER 492-1-4051-01

WELL NUMBER MW-5

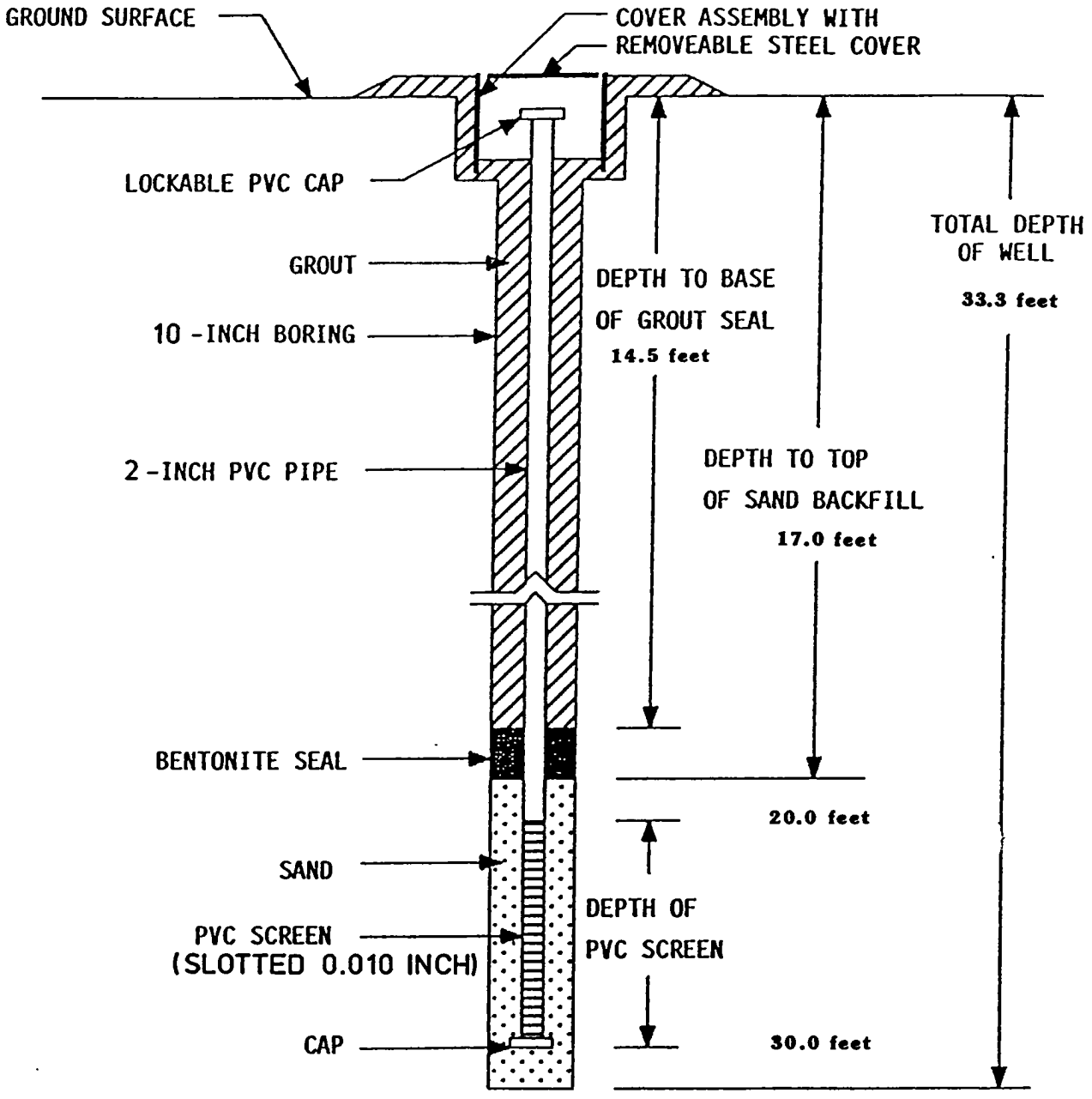
GROUND SURFACE ELEVATION 531.13 feet

LOCATION McCormick, S.C.

MEASURING POINT ELEVATION 530.83 feet

INSTALLATION DATE 3/22/91

LATITUDE 33°54'47" LONGITUDE 82°17'53"



LAW ENGINEERING

MONITORING WELL
INSTALLATION RECORD
MW-5

JOB NAME Crown Station S.C. - 576

WELL NUMBER MW-6

LOCATION McCormick, S.C.

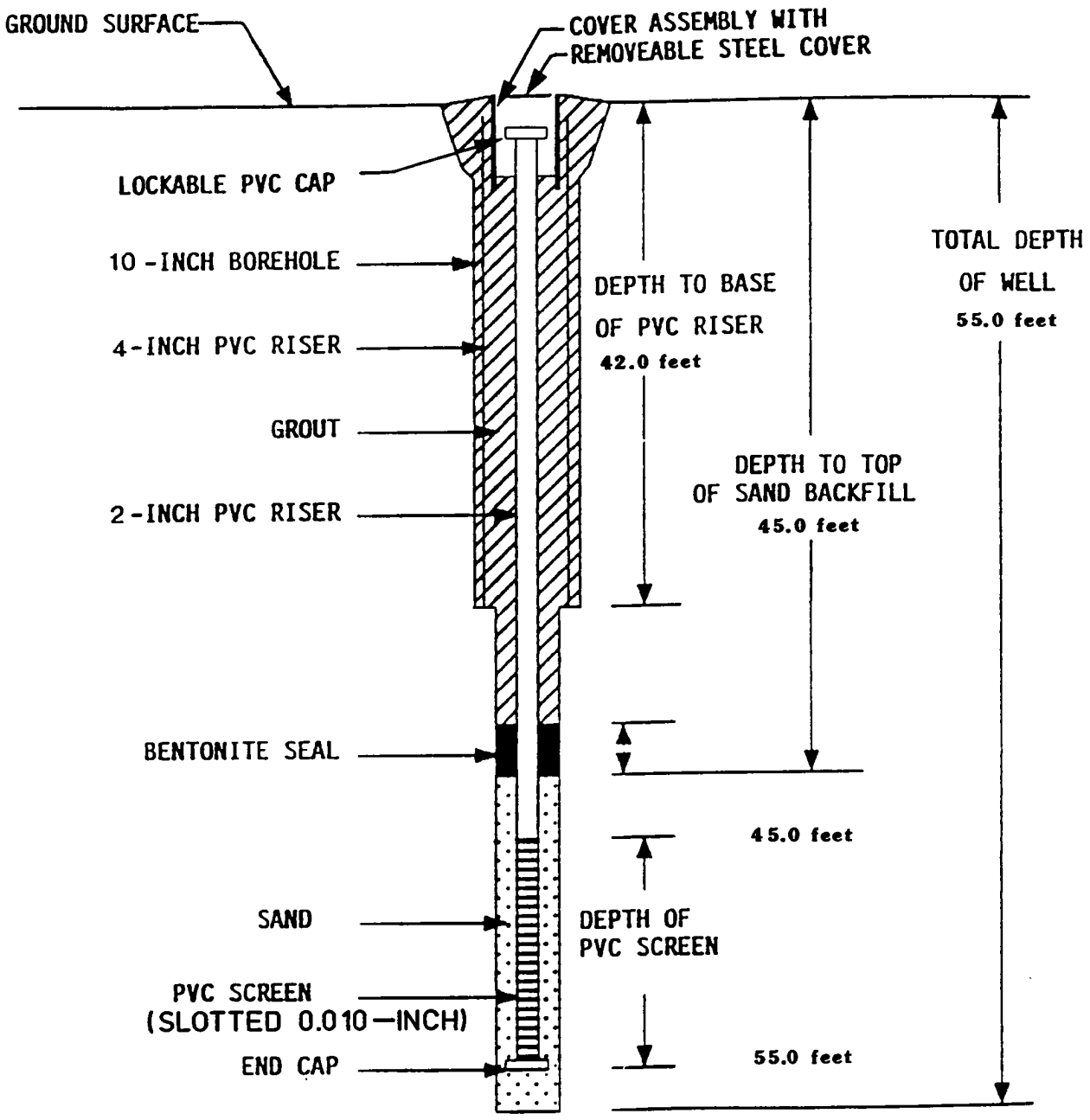
INSTALLATION DATE 3/25/91

JOB NUMBER 492-1-4051-01

GROUND SURFACE ELEVATION 529.75 feet

MEASURING POINT ELEVATION 529.45 feet

LATITUDE 33° 54' 47" LONGITUDE 82° 17' 52"



LAW ENGINEERING

MONITORING WELL
INSTALLATION RECORD
MW-6

APPENDIX E

LABORATORY TEST RESULTS

LAW ENVIRONMENTAL, INC.

NATIONAL LABORATORIES DIVISION
300 CHASTAIN CENTER BLVD. SUITE 315
KENNESAW, GEORGIA 30144
404-426-4309 FAX 426-0243

April 24, 1991

Law Engineering, Inc.
720 Gracern Rd. , Suite 132
Columbia, SC 29210

Attention: Rick Grant

LE Job Number: 492-1-4051

Subject: Chemical Analysis of samples received on 04/18/91.

Dear Mr. Grant:

Law Environmental National Laboratories has completed its analysis of your samples and reports the results on the following pages. These results relate only to the contents of the samples as submitted. This report shall not be reproduced except in full without the approval of Law Environmental National Laboratories.

If there are any questions, please do not hesitate to contact us.

Sincerely,

LAW ENVIRONMENTAL NATL LABS

Linda Harris
Hydrocarbon Laboratory Supervisor

Attachment: Data Report
Invoice

TEST DATA REPORT

Date 04/24/91
Page 1

--- Project Information ---

Lab Number : 61-2275-01
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # McCORMICK 1 Sampled Date/Time : 04/16/91 14:30
Matrix : W Received Date/Time : 04/18/91 14:30
Type : GRAB Received From/By : RG/LH
Collector : RG Chain of Custody : 1342
Number of Containers : 3

Remarks : *THE CHROMATOGRAM RESEMBLES THAT OF GASOLINE.

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
TPH, Volatile	SFB 5030	%	5	78	04/19/91	RWE

Signed Linda Harris

--- Project Information ---

Lab Number : 61-2275-02
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # McCORMICK 2
Matrix : W
Type : GRAB
Collector : RG

Sampled Date/Time : 04/16/91 14:30
Received Date/Time : 04/18/91 14:30
Received From/By : RG/LH
Chain of Custody : 1342
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Benzene	EPA 602	ug/l	2000	43000	04/22/91	PDG
Toluene	EPA 602	ug/l	2000	88000	04/22/91	PDG
Ethylbenzene	EPA 602	ug/l	2000	18000	04/22/91	PDG
Xylene, Total	EPA 602	ug/l	4000	88000	04/22/91	PDG

Signed Linda Haun

AW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

--- Project Information ---

Lab Number : 61-2275-04
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # McCORMICK 4
Matrix : W
Type : GRAB
Collector : RG

Sampled Date/Time : 04/16/91 14:30
Received Date/Time : 04/18/91 14:30
Received From/By : RG/LH
Chain of Custody : 1342
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Benzene	EPA 602	ug/l	1000	29000	04/22/91	PDG
Toluene	EPA 602	ug/l	1000	37000	04/22/91	PDG
Ethylbenzene	EPA 602	ug/l	1000	4900	04/22/91	PDG
Xylene, Total	EPA 602	ug/l	2000	24000	04/22/91	PDG

Signed Linda Hamm

AW ENVIRONMENTAL NATIONAL LABO TORIES
TEST DATA REPORT

Date 04/24/91
Page 1

--- Project Information ---

Lab Number : 61-2275-05
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # McCORMICK 5
Matrix : W
Type : GRAB
Collector : RG

Sampled Date/Time : 04/16/91 :
Received Date/Time : 04/18/91 14:30
Received From/By : RG/LH
Chain of Custody : 1342
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Benzene	EPA 602	ug/l	1000	30000	04/22/91	PDG
Toluene	EPA 602	ug/l	1000	40000	04/22/91	PDG
Ethylbenzene	EPA 602	ug/l	1000	7000	04/22/91	PDG
Xylene, Total	EPA 602	ug/l	2000	36000	04/22/91	PDG

Signed Linda Hamm

LAW ENVIRONMENTAL NATIONAL LABORATORIES
TEST DATA REPORT

Date 04/24/91
Page 1

--- Project Information ---

Lab Number : 61-2275-03
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # McCORMICK 6
Matrix : W
Type : GRAB
Collector : RG

Sampled Date/Time : 04/16/91 14:30
Received Date/Time : 04/18/91 14:30
Received From/By : RG/LH
Chain of Custody : 1342
Number of Containers : 3

Remarks :

--- Test Data ---

Parameter	Method	Units	PQL	Results	Test Date	Analy
--- SERIES 15000						
Benzene	EPA 602	ug/l	100	2700	04/22/91	PDG
Toluene	EPA 602	ug/l	100	5000	04/22/91	PDG
Ethylbenzene	EPA 602	ug/l	100	1000	04/22/91	PDG
Xylene, Total	EPA 602	ug/l	200	5400	04/22/91	PDG

Signed Linda Hamm

AW ENVIRONMENTAL NATIONAL LABO ORIES
TEST DATA REPORT

ate 04/24/91
age 1

--- Project Information ---

Lab Number : 61-2275-06
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # MW-1 Sampled Date/Time : 04/16/91 16:30
Matrix : SO Received Date/Time : 04/18/91 14:30
Type : GRAB Received From/By : RG/LH
Collector : RG Chain of Custody : 1342
Number of Containers : 1

Remarks :

--- Test Data ---

arameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
oisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	7.9	04/24/91	PDG
--- SERIES 15000						
enzene	EPA 8020	ug/kg	1800	11000	04/22/91	PDG
oluene	EPA 8020	ug/kg	1800	440000	04/22/91	PDG
Ethylbenzene	EPA 8020	ug/kg	1800	260000	04/22/91	PDG
ylene, Total	EPA 8020	ug/kg	3600	1200000	04/22/91	PDG

1.9%

Signed Linda Hamm

AW ENVIRONMENTAL NATIONAL LABO ORIES
TEST DATA REPORT

--- Project Information ---

Lab Number : 61-2275-07
Project No. : 492-1-4051 Cust. No. :
Project Name : CROWN PETROLEUM

Manager: RICK GRANT

--- Sample Information ---

Station ID : WELL # MW-5
Matrix : SO
Type : GRAB
Collector : RG

Sampled Date/Time : 04/16/91 16:30
Received Date/Time : 04/18/91 14:30
Received From/By : RG/LH
Chain of Custody : 1342
Number of Containers : 1

Remarks :

--- Test Data ---

)arameter	Method	Units	PQL	Results	Test Date	Analy
-- SAMPLE PREPARATION RESULTS --						
loisture (Oven Dried @ 105 C)	EPA 160.3M	wt %	1	11	04/24/91	PDG
--- SERIES 15000						
)enzene	EPA 8020	ug/kg	1.0	ND	04/22/91	PDG
:oluene	EPA 8020	ug/kg	1.0	3.5	04/22/91	PDG
Ethylbenzene	EPA 8020	ug/kg	1.0	24	04/22/91	PDG
'ylene, Total	EPA 8020	ug/kg	2.0	24	04/22/91	PDG

Signed Linda Hamm

LAW ENVIRONMENTAL, INC.
NATIONAL LABORATORY
112 TOWNPARK DRIVE
KENNESAW, GEORGIA 30144
(404) 421-3400

CHAIN OF CUSTODY RECORD

1342

SAMPLING INFORMATION
NPDES NUMBER

NAME OF FACILITY: _____

STREET ADDRESS: _____

PROJECT NAME: Crown Petroleum

JOB NO.: 492-1-4051

SAMPLERS (SIGNATURE): Rick Grantis PM.

SAMPLING DATE: 4/16

TIME	GRAB	COMP.	*SOURCE CODE	SAMPLE STATION DESCRIPTION	TOTAL NO. OF CONTAINERS	40 ml G VOA HCl	1 L G - AMBER	8 oz. G, W/M	2 oz. G, W/M	1 L G (H_2SO_4)	500 ml - AMBER	1 L, PL (HNO_3)	1 L, PL (H_2SO_4)	1L, PL (NaOH+Ascorbic Acid)	1 L, PL (Zn Acetate + NaOH)	1 L, PL	4 oz. PL W/M	250 ml PL	1 L, TEFLON	LENL LAB NO.
230	X		MW	Well # McConnell 1	3													Sif Bag TPH-Vol		61-2775-01
	X		MW	well # McConnell 2	3										BTEX					-02
	X		MW	well # McConnell 6	3															-03
230	X		↓	well # McConnell 4	3															-04
~~130~~	X		MW	well # McConnell 5	3															-05
430	X		S	well # (MW1)			1													-06
430	X		S	well # (MW5)			1													-07

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	DATE / TIME	RELINQUISHED BY: (SIGNATURE)	RECEIVED BY LABORATORY: (SIGNATURE)	DATE / TIME

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REMARKS _____

***SOURCE CODES**

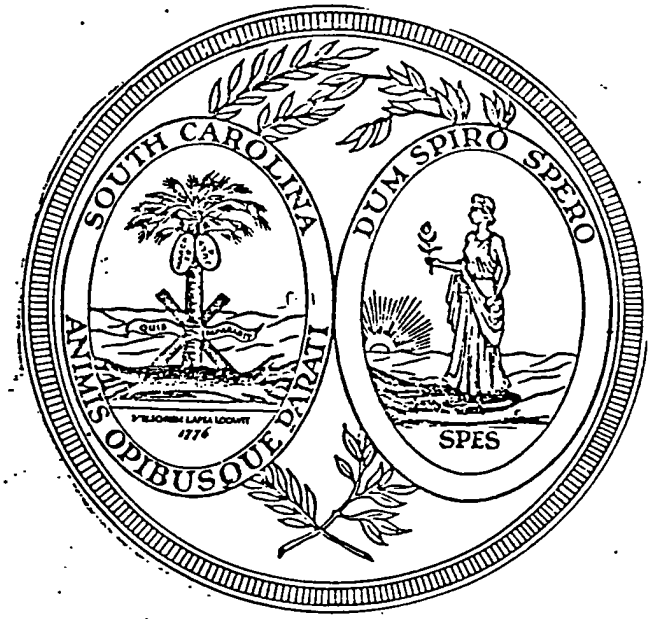
RECOVERY WELL - RW	NPDES DISCHARGE - ND
RCRA MONITORING WELL - MW	DRINKING WATER - DW
SOIL / SEDIMENT - SO	HAZARDOUS WASTE - HW
SLUDGE - SL	SURFACE WATER - SW
	NON-AQUEOUS - NA

APPENDIX F

GUIDANCE MANUAL

FOR

INDUSTRIAL WASTEWATER DIVISION PERMITTING REQUIREMENTS FOR HYDROCARBON CONTAMINATED GROUNDWATER REMEDIATION PROJECTS



SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

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III.	NPDES PERMIT	5
IV.	ND PERMIT FOR IN SITU DISPOSAL	8
V.	PERMIT TO CONSTRUCT AND PERMIT TO OPERATE	9
VI.	TREATMENT REQUIREMENTS	15
VII.	TREATMENT TECHNOLOGIES	16

APPENDICES

A	NPDES and ND Permit Processing
B	Sample NPDES Permit Rationale for a Case of Zero Dilution
C	Requirements for Discharge to POTWs

Ground Water Contacts:

Raymond Knox (UST)(803)734-5238
Rick Oldham (803)734-5324

Industrial Wastewater Division Contacts:

Nancy Weatherup (803)734-5246
Cynthia Walters (803)734-5239

I. INTRODUCTION

This guidance document is to familiarize industry and consultants with the permitting requirements of the Industrial Wastewater Division. This document is tailored towards the Division's permitting requirements for hydrocarbon contaminated ground-water remediation projects, specifically for the treatment and disposal of contaminated ground-water. It should be noted that gasoline will be used as the main example throughout this document of a hydrocarbon-based material.

Contaminated ground water generated from groundwater remediation projects must be properly treated and disposed. At present, there appears to be three options for disposal. They are as follows:

1. Discharge to surface water.

2. Discharge to a publicly owned treatment works.

3. In situ infiltration disposal units - Will be defined as on-site disposal of groundwater such as infiltration galleries, percolation ponds, spray irrigation, etc.

This document should assist in the evaluation process in deciding the best option for a particular site. To avoid possible delays, it is highly recommended that this evaluation process begin as soon as the determination to initiate product recovery and/or ground water cleanup has been made. It should be noted that for the purposes of this document, the terms contaminated ground water and wastewater shall be interchangeable.

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II. DISCUSSION OF REQUIRED PERMITS

There are three permits which may need to be obtained from the South Carolina Department of Health and Environmental Control (DHEC) Industrial and Agricultural Wastewater Division for the disposal of ground water from product recovery systems and from the treatment of contaminated ground water. They are as follows:

1. National Pollutant Discharge Elimination System Permit (NPDES) or No Discharge Permit (ND) (SCWPCA Section 48-1-100 and R61-9).
   Any person wanting to discharge wastewater to surface waters of the State must first obtain a NPDES permit from DHEC. (This includes any any point source discharges to storm drainage systems.)
   Any person wanting to discharge to an infiltration disposal unit must first obtain a ND permit from DHEC.

2. Permit to Construct [SCWPCA Section 48-1-110(a)(1) and R61-67]. Any person who wishes to construct a wastewater treatment system (i.e. an oil/water separator, a wastewater storage facility, an air stripper, etc.) must first obtain a permit to construct from DHEC. This permit is required whenever wastewater is treated, regardless of the method of disposal.

3. Permit to Operate [SCWPCA Section 48-1-110(a)(3) and R61-67]. A permit to operate must be issued by DHEC prior to any person starting up a wastewater treatment system.

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The following points of concern are offered for information:

1. Operator [SCWPCA Section 48-1-110(b)].

   If a wastewater treatment facility needs to be constructed, an operator of proper grade must be provided to operate and maintain this facility. The grade of the operator required will be stated on the Permit to Construct.

2. The Permit to Construct will not be issued for direct discharges to waters of the State until the NPDES/ND permit has become effective.

3. The wastewater treatment facility cannot be constructed on-site until a Permit to Construct has been issued.

4. A Permit to Operate must be issued prior to starting up a wastewater treatment facility.

5. Any contaminated groundwater generated from a pumping test must be properly disposed of. Prior DHEC approval must be received for disposal to a publicly owned treatment works (POTW) or any private company accepting wastewater.

6. Any proposed dischargers to a publicly owned treatment works (POTW) must submit to the Industrial Wastewater Division, with the construction permit application, a letter from the sewer authority agreeing to accept and treat the proposed effluent. In addition, this letter should contain any limitations or special conditions regulating the discharge. Specific SCDHEC requirements are listed in Appendix C.

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7. Discharges to storm drainage systems must receive a NPDES permit. The 7Q10 will be assumed to be zero for this type discharge. If a ditch or storm drain is to be used for wastewater conveyance to a water body, the permittee must own the land to the water body through which the ditch or drain runs or obtain easements for waste conveyance from the land owner(s) (i.e. private citizens, counties, municipalities and/or other public and private entities).

8. Any proposed dischargers to an in situ infiltration disposal unit must obtain a ND permit, construction permit and an operating permit from the Industrial and Agricultural Wastewater Division. These permits will include both the treatment system and the infiltration system.

9. If an air stripper or an aeration tank is proposed, the Company must notify the Bureau of Air Quality Control. Based on their review, the Air Quality Control Bureau will determine if an air permit will be required. (Contact Robert Wood at 734-4750). A letter of approval or permit from the Bureau of Air Quality Control will need to be submitted during the final inspection for the Permit to Operate.

10. If a mobile treatment unit is proposed, a construction and operating permit will be required. A letter of approval from DHEC will need to be obtained for each specific site.

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The following sections will delineate what is required by the Industrial and Agricultural Wastewater Division in order to process and issue the necessary permits.

III. NPDES PERMIT

A. NPDES Application

The company or entity must submit an Application Form 1 - General Information and Form 2-D - Application for Permit to Discharge Wastewater, New Sources and New Discharges. The following instructions will assist you in completing the NPDES permit application:

1. The type(s) of material that was spilled or leaked should be identified in Part VII.

2. The discharge flow required in Part V should be estimated using best professional judgement based on experience with similar sites.

3. The other parameters to be included in Part V should be any water soluble component of the material spilled. For gasoline, the parameters to be included, at a minimum, are as follows:

(a) benzene	(g) MTBE
(b) toluene	(h) pH
(c) ethylbenzene	(i) lead (total)
(d) xylenes	(j) naphthalene
(e) EPA Methods 601/602 (Gasoline)	(k) any other constituents believed present
(f) BOD_5	

Note: For all hydrocarbon products other than gasoline, the above list should be used by replacing (e) and (j) with EPA Methods 624 and 625.

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4. A written justification/rationale for the Part V flow and parameter concentrations must be provided. This Office recommends that the worst-case well be analyzed for the Item 3 parameters to provide this justification.

5. If the quantitation limits are above standard detection limits, a provision of the NPDES permit will be the submission of a completed 2-C NPDES application within ninety (90) days after the facility begins to discharge. This will be a check of all assumptions made in the 2-D NPDES application. If required, the NPDES permit will be modified at that time to reflect actual conditions.

6. A USGS topographic map (7 1/2' Quad) showing the proposed point of discharge and ultimate receiving waters must be included.

B. NPDES Permit

The NPDES permit will provide effluent limits for the parameters of concern. An example of limits and the rationale for these limits derived for a gasoline remediation site is included in Appendix B. This example should be used as a guide only and does not preclude DHEC from limiting other constituents in the NPDES permit which may be necessary. Please note, the effluent must meet the NPDES discharge limitations at all times including the initial discharge. How limitations are to be met must be addressed in the engineering report required to be submitted for the construction permit.

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C. Approximate Time Schedule to Obtain a NPDES Permit (See Appendix A)

Action	Time(days)	Total(days)
1. Submittal of a completed 2-D application and Form 1 to DHEC.	0	0
2. Process permit application.	5	5
3. DHEC drafts NPDES permit and submits to company for review.	60^	65
4. Company reviews draft & submits comments and/or acceptance to DHEC.	*30	95
5. Draft permit goes through Public Notice period.	**40	135
6. Administrative action, permit issued.	5	140
7. NPDES permit effective.	15	155

^ Time may vary due to backlog of projects. In the past year, the time has averaged from six to eight weeks.

* Time may be reduced or increased, depending on the length of time to obtain mutual acceptance of the permit.

** When the NPDES permit goes on public notice, the general public has the opportunity to comment. If a public hearing is requested and/or the permit is adjudicated, the time-frame above will be prolonged.

NOTE: The Preliminary Engineering Report and final engineering plans and specifications should be submitted during the above time frame. The Permit to Construct will not be issued until after the NPDES permit has become effective. Project review, however, can be conducted once the NPDES permit limitations have been established.

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IV. PERMITTING PROCESS FOR IN SITU DISPOSAL OF WASTEWATER

A. Three sets of a preliminary engineering report (PER) needs to be submitted by a registered professional engineer of the State of South Carolina for DHEC review and approval (Reg. 61-67). This report should include design calculations, hydrogeological evaluation, etc. [See Section (V(A)(1))]

B. Once the PER is approved, DHEC will develop a draft No Discharge (ND) permit. Once the permittee concurs with the draft ND permit, it will be placed on public notice. The time frame to obtain a ND permit will follow the schedule provided for the NPDES permit.

C. Three sets of final plans and specifications prepared by a registered professional engineer of the State of South Carolina must be submitted along with an application for permit to construct to DHEC.

D. If no comments are received on the draft ND permit, the ND permit will be issued and the construction permit can be issued shortly thereafter, if all technical requirements are met.

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V. PERMIT TO CONSTRUCT AND PERMIT TO OPERATE

A. Permit to Construct

In order to obtain a Permit to Construct the following information needs to be submitted to the South Carolina Department of Health and Environmental Control for review and approval:

(1) Preliminary Engineering Report (PER)

Three sets of a Preliminary Engineering Report prepared and stamped by a registered professional engineer of the State of South Carolina need to be submitted. The report should include at minimum:

a. A statement of purpose

The applicant must state the reason for the need of a wastewater treatment facility and describe the source of the wastewater.

b. A characterization of the wastewater must be provided.

(i) Influent constituent concentrations. Influent concentrations should be based on worst-case ground-water monitoring data. The constituents that need to be addressed are the same as those listed in the NPDES application (III(A)(3)).

(ii) Flow rate (average and maximum) calculations and/or basis must be provided. The flow may be approximated if accurate flow data is not available.

c. The required effluent limitations from the appropriate regulatory authority must be provided (i.e. NPDES permit limits, pretreatment limits, drinking water standards, etc.).

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d. A discussion of the basic design concept must be provided with a justification (i.e. calculations, bench scale testing, etc.). When several contaminants are present in the groundwater, the design procedure should be carried out for all parameters of concern as established by appropriate limitations. The final design should be based on the compound whose effluent standard is the most difficult to achieve.

e. A schematic of process wastewater flow must be provided. This schematic should include all existing and proposed wastewater pollution abatement equipment and the points of generation of wastewater. Each area must show the volume of wastewater flow.

f. Solids or fuel disposal must be thoroughly discussed. A schematic must be provided tracing from generation to ultimate disposal. Solids should be characterized, if possible, to determine whether it is hazardous or nonhazardous.

g. Flow monitoring and sampling stations must be provided.

h. If an air stripper is proposed, the following minimal information should be provided:

1. column diameter
2. packing depth and type
3. liquid flow rate and hydraulic loading rate
4. air flow rate
5. air/water ratio
6. pressure drop
7. design temperature

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i. If in situ infiltration treatment and/or disposal is to be proposed, a preliminary site investigation report must be submitted. The investigation information should include the following information:

1) depth of seasonal high water table;
2) soil description to a minimum depth of eight (8) feet;
3) depth and measured permeability of the most restrictive subsurface layers;
4) direction of groundwater flow;
5) distance to nearest water supply wells;
6) effective cation exchange capacity of the soil (ECEC);
7) evaluation of lead and other additives concentration versus treatment capacity of the receiving soil;
8) site map detailing all soil test and boring locations; and
9) miscellaneous information as deemed necessary based on site specifics.

(2) Final Engineering Report

Once DHEC approves the PER, the company will need to submit three sets of the Final Engineering Report (plans, specifications, and application for Permit to Construct) prepared and stamped by a registered professional engineer of the State of South Carolina. The Final Engineering Report should include, at a minimum, the following information:

a. The following plans for the total system from the groundwater recovery well(s) to the point of discharge must be included:

1. Detailed drawings of equipment;
2. Overall layout of proposed system;
3. Plan and profile drawings of the wastewater system and piping to include the infiltration system where appropriate;
4. Final schematic (flow chart).

b. Design information for the proposed equipment should include, as applicable;

1. Flow rates expected (design flow rates);
2. Tank detention times;
3. Tank sizes;
4. Clarifier overflow rates;

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5. Method of chemical additions;
6. Chemicals used for pH adjustment and flocculation;
7. Aeration requirements;
8. Sand filter infiltration rates;
9. Sand filter backwash water rates;
10. Lagoon and tank freeboard;
11. Level alarms;
12. Sludge removal equipment;
13. Flow measurement; and,
14. Other

c. Materials specifications must be included. (Note: The materials specifications must also be stamped by a registered professional engineer of the State of South Carolina).

d. If in situ treatment is proposed, calculations based on site-specific conditions (see A.(1)i.) must be provided for sizing, construction and pumping rates for the disposal and/or return unit.

3. A wastewater operator may be required for the wastewater treatment facility. The need for an operator and the appropriate grade will be determined by the type of treatment system approved.

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B. Permit to Operate

The Permit to Operate will be issued to the company once a final inspection has been performed by the Department, and the facility is found to be built in accordance with the final plans and specifications. Prior to the Department's final inspection, the company must provide the following information:

1. A letter from the South Carolina registered professional engineer responsible for the construction of the wastewater treatment facility as identified in the application for the Permit to Construct, certifying that the construction has been completed in accordance with the approved plans and specifications.

2. A letter from the operator of proper grade certifying that he/she will be responsible for the operation and maintenance of the facility at the site, if applicable.

The final inspection will be performed by the district office personnel whose name and address will be stated on the transferal letter which will accompany the Permit to Construct.

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C. Approximate Time Schedule and Sequence of Events to Obtain a Permit to Construct and a Permit to Operate

Action	Time(days)	Total(days)
1. Company submits to DHEC a Preliminary Engineering Report (PER) for review.	0	0
2. DHEC reviews PER and responds with comments and/or acceptance to company.	60	60
3. Company submits Final Engineering Report (FER) to DHEC for review.	30	90
4. DHEC reviews FER and responds with comments or prepares to issue Permit to Construct.	30	120
5. NPDES permit effective.	--	--
6. DHEC issues Permit to Construct	--	--
7. Company begins construction of waste-water treatment unit.	--	--
8. Company completes construction of waste water treatment unit.	--	--
9. Company requests final inspection.	--	--
10. DHEC performs final inspection.	--	--
11. Permit to Operate is issued, if approved.	--	--
12. Company may start up wastewater if contrustion of the treatment facility is approvable.	--	--

NOTE: (A) The time-frames above are dependent on the adequacy of the submittal, the company response to DHEC, and the current backlog of projects.
(B) The company may not start construction of its wastewater treatment facility until a Permit to Construct is issued.

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VI. TREATMENT REQUIREMENTS

A. Surface Water Discharge

Treatment will be determined on a case-by-case basis based on the limits established by the NPDES permit. The design criteria will depend on the maximum concentrations of the constituents (i.e. lead, benzene, naphthalene, etc.) found in the ground water and the water quality recommendations and/or human health recommendations, whichever are more stringent (See Appendix B). The minimum treatment required will be an oil/water separator.

B. In situ Infiltration Disposal

For in situ infiltration disposal units, a minimum treatment requirement for volatile organics will be air stripping or equivalent treatment to meet MCL or State Drinking Water Standards. For metal constituents, an evaluation of the soil conditions and ground-water standards should be performed to demonstrate that the ground-water concentrations will not be elevated above MCL or State Drinking Water Standards. If this can not be successfully demonstrated, treatment will need to be provided. In addition, the permittee will be required to determine if any other parameter of concern will be effectively treated by the proposed in situ infiltration system.

C. POTW

Treatment will be determined on a case-by-case basis. The design criteria will be based on the limits imposed by the sewer authority's pretreatment permit/contract.

D. Other

Any innovative technology proposals, such as enhanced biodegradation, may not require treatment of contaminants to MCL or State Drinking Water levels if it can be shown that complete hydraulic control of the contaminant plume can be achieved. The innovative technology proposals will be reviewed on a case-by-case basis.

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VII. TREATMENT TECHNOLOGIES

A. Volatile Organics

There are several alternatives for the treatment of volatile organics. The more well known of these alternatives are listed below:

a. aeration/volatilization chamber
b. activated carbon unit
c. air stripper
d. oil/water separator

NOTE: While these are the most common, other forms of treatment are possible. These forms of treatment will be evaluated on a case-by-case basis.

B. Metals

Treatment Alternatives

a. Hydroxide precipitation
b. Ion exchange

C. Additives

The level of treatment will be based on the additives present and therefore may vary greatly.

CONCLUSION:

As can be seen, the required Industrial Wastewater permits for groundwater remediation projects are straight forward for those who develop a working knowledge of the information contained in this document. In addition, coordinating the work necessary to obtain the appropriate permits with the ongoing hydrogeologic investigation will enable remediation to begin in a timely manner.

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APPENDIX A

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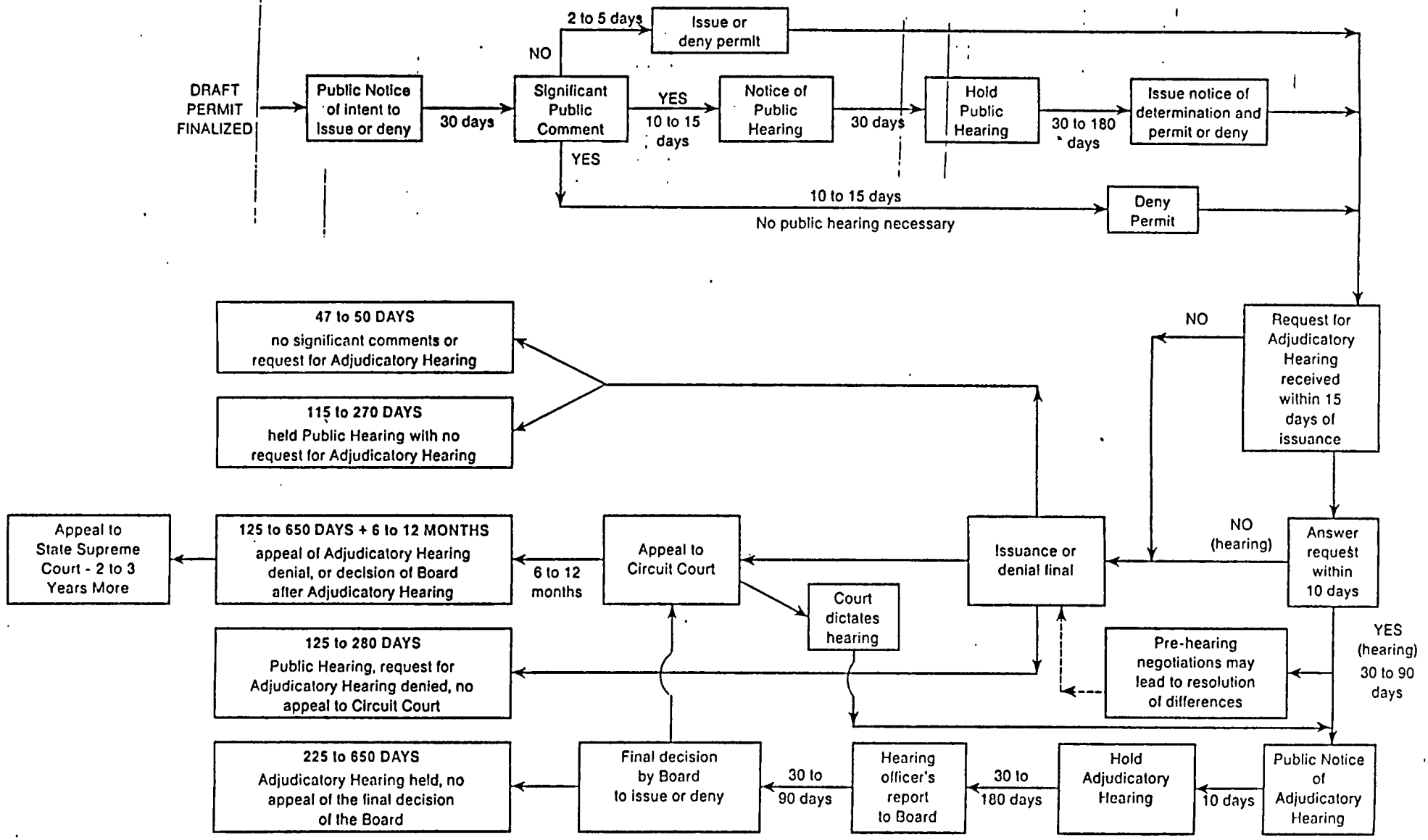
POSSIBLE N.P.D.E.S. AND NO DISCHARGE SYSTEM PERMIT PROCESSING PATHS WITH ESTIMATED TIMES FRAMES SHOWN



APPENDIX B

APPENDIX B - Example of a "Worst Case" Rationale

Rationale

The wastewater from this project will be generated due to the clean-up of contaminated groundwater at the XYZ Facility in DHEC County. Approximately Qd gallons per day of wastewater will be discharged into Pristine Creek (Class B) which has a 7Q10 flow of zero cfs. The 7Q10 of Pristine Creek is based on a drainage area of zero square miles.

Determination of Limitations

Pristine Creek 7Q10 = 0.0 cfs (0.0 MGD)
Discharge Flow = Qd MGD
Dilution Factor (DF) = $\frac{7Q10 + Qd}{Qd} = \frac{0.0 + Qd}{Qd} = 1.0$
Instream Waste Concentration (IWC) = 1/DF x 100% = 100%

Allowable discharge Concentration = Acceptable Instream Concentration x Dilution Factor

Discharge limitations are proposed for those pollutants found to be present in the groundwater. Limitations are based on EPA Water Quality Criteria (WQC) and Human Health (HH) considerations, whichever are more stringent. Where applicable, Drinking Water Maximum Contaminant Levels (MCLs) are used. If a MCL is higher than a HH concentration, the MCL will be used. In instances where the proposed discharge concentration is lower than the State's lower limit of detection, the applicable limitation will be less than (<) the detection limit.

A. Benzene
   1. Sampling results: ? ppb
   2. 1980 WQC: 5,300 ppb/100 x (DF = 1) = 53 ppb
   3. HH Recommendation: 6.6 ppb (1E-5 cancer risk)
   4. Drinking Water MCL: 5 ppb
   5. State Lower Limit of Detection: 2 ppb (Volatiles)
   6. Proposed Limit: 5 ppb

B. Naphthalene
   1. Sampling results: ? ppb
   2. 1980 WQC: 2,300 ppb/100 = 23 ppb
   3. HH: not available
   4. MCL: not available
   5. State Detection: 4 ppb
   6. Proposed Limit: 23 ppb

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C. Xylenes
1. Sampling results: ? ppb
2. Acute toxicity: 8,200 ppb/100 = 82 ppb
3. HH: not available
4. MCL: not available
5. State Detection: 2 ppb
6. Proposed Limit: 82 ppb

D. Toluene
1. Sampling results: ? ppb
2. 1980 WQC: 17,500 ppb/100 = 175 ppb
3. HH: 14,300 ppb
4. MCL: not available
5. State Detection: 2.0 ppb
6. Proposed Limit: 175 ppb

E. Ethylbenzene
1. Sampling results: ? ppb
2. 1980 WQC: 32,000 ppb/100 = 320 ppb
3. HH: 1,400 ppb
4. MCL: not available
5. State Detection: 2 ppb
6. Proposed Limit: 320 ppb

F. Lead
1. Sampling results: ? ppb
2. 1985 WQC: 1.3 ppb
3. HH: 50 ppb
4. MCL: 50 ppb
5. State Detection: 50 ppb
6. Proposed Limit: <50 ppb

G. Methyl Tert-Butyl Ether (MTBE)
1. Sampling results: ? ppb
2. 96-hr LC50: 706,000 ppb/100 = 7,060 ppb
3. HH: not available
4. MCL: not available
5. State Detection: not available
6. Proposed Limit: 7,000 ppb (7 ppm)

H. pH
6.0 to 8.5 (Water Classifications & Standards, Reg. 61-68)

I. Biochemical Oxygen Demand (BOD)
1. Sampling results: ? ppm
2. Based on water quality considerations, BOD will be limited to 10 ppm as a monthly average and 20 ppm as a daily maximum. The 10 ppm is the concentration which is reasonably expected to be achieved.

J. Biological Monitoring

Depending on the nature of the discharge and the pollutants found to be present in the groundwater, biological monitoring may be required. To ensure that water quality standards are not contravened, a seven (7) day chronic renewal toxicity test using a control and an instream waste concentration (IWC) of 100% is usually required for groundwater remediation projects.

K. Summary

Pollutant	Proposed Limitation (ppb)
BOD_5	10 ppm
Naphthalene	23
Benzene	5
Xylenes	82
Toluene	175
Ethylbenzene	320
Lead (Total)	1.3
MTBE	7,000
pH	6.0 to 8.5

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RISK-BASED CORRECTIVE ACTION TIER EVALUATION REPORT

Former Crown Service Station No. SC-576
200 North Mine Street (SC Hwy 28)
McCormick, McCormick County, South Carolina
SC ID No. 6443

October 15, 1996

RECEIVED
NOV 1 6 1996
Bureau of Underground
Storage Tank Management

Prepared For:
Crown Central Petroleum Corporation
One North Charles Street
P.O. Box 1168
Baltimore, Maryland 21203

UST
DOCKETING

Prepared By:
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James E. Wellons, Staff Geologist — 11-15-96 Date

Jerry L. Meade, P.E., Principal — 11-15-96 Date

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 11353 JERRY L. MEADE

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RISK-BASED CORRECTIVE ACTION TIER EVALUATION REPORT

Former Crown Service Station No. SC-576
200 North Mine Street (SC Hwy 28)
McCormick, McCormick County, South Carolina
SC ID No. 6443

1.0 INTRODUCTION

In accordance with the authorization of Crown Central Petroleum Corporation (Crown), and South Carolina Department of Health and Environmental Control (SCDHEC), MEADE engineering and environmental, P.C. (MEADE) has completed this Risk-Based Corrective Action (RBCA) Tier 2 Evaluation Report for the former Crown Service Station No. SC-576 located at 200 North Mine Street (SC Hwy 28), McCormick, South Carolina (South Carolina I.D. No. 6443).

This document was prepared in general accordance with the SCDHEC Groundwater Protection Division guidance document for the completion of Risk-Based Corrective Action for Petroleum Releases, dated June 1995. SCDHEC granted approval to perform the RBCA Evaluation on July 17, 1996. A copy of the SCDHEC approval letter is included in Appendix A.

1.1 SITE DESCRIPTION / HISTORY

The Former Crown Service Station No. SC-576 is located at 200 North Mine Street (SC Hwy 28), McCormick, South Carolina. A topographic location map constructed from the USGS McCormick, South Carolina, 7.5 minute topographic maps is presented as Figure 1. The property is relatively flat with gentle sloping

hills immediately surrounding the site. The site is located in a predominantly commercial area with residential areas to the southwest and south.

Lil' Cricket currently operates the convenience store and fuel retailing facility. The existing tank field consists of three 8,000-gallon gasoline underground storage tanks (USTs) and one gasoline pump island. A site plan is presented as Figure 2.

A tank assessment performed by Atlanta Testing and Engineering (AT&E) (report dated November 27, 1989) indicated petroleum impacted soil surrounding the USTs. Four monitoring wells installed during AT&E's testing activities did not encounter groundwater.

1.2 Geology and Hydrogeology

McCormick is located in the Piedmont Physiographic Province of South Carolina. The regional topography can be described as gently rolling hills. Virgin soils in the area are the residual products of in-situ chemical weathering of igneous and metamorphic rocks. Based on soil boring and well installation records, soils beneath the site consists of sandy silts, silts, clayey silts, silty clays, and clays. The boundary between soil and rock is gradational.

In order to assess the direction of groundwater movement, depth-to-water measurements were collected from the site monitoring wells and recorded relative to the top of each well casing. Representative amounts of groundwater were not encountered in monitoring wells MW-7, MW-8, MW-9, MW-10, MW-14, and MW-16. The water level measurements collected by MEADE on August 13,

1996, and October 11, 1996, are presented in Table 1a and Table 1b. These data were used to estimate water table elevations, which were then used to prepare the relative groundwater potentiometric surface maps presented as Figure 3 and Figure 4. Based on the available groundwater data, groundwater flow direction at the site is to the east/northeast.

1.3 Previous Assessment Activities

In November 1990, Law Engineering and Environmental, Inc. (Law) performed a Ground-Water Contamination Assessment and submitted a report to Crown on August 16, 1991. Four Type II monitoring wells (MW-1, MW-2, MW-4, and MW-5) and one Type III monitoring well (MW-6) were installed in March 1991. Groundwater samples from the five newly installed monitoring wells were collected and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) constituents.

SCDHEC approved the site for SUPERB funding on January, 17, 1992. Law submitted a Free Product Gauging and Bailing Plan to SCDHEC on April 22, 1992 and initiated the plan on May 4, 1992. On April 24, 1992, Law submitted an Expanded Assessment Plan (EAP) to SCDHEC. The EAP was approved by SCDHEC on August 10, 1992. On August 10, 1992, SCDHEC also approved the installation of monitoring wells MW-7 through MW-14 and an automated free product recovery system.

In January 1994, Law submitted an Assessment Report to SCDHEC. The assessment included the installation of new monitoring wells. Between December 8 and December 12, 1992, a Type IV monitoring well (MW-13) was

installed to a depth of 130 feet. In December 1992, SCDHEC approved the installation of additional monitoring wells, three recovery wells, and a total fluids recovery system. The total fluids recovery system consisting of three total fluids pneumatic pumps, an oil/water separator, and an air compressor were installed between December 19, 1992 and February 24, 1993. Between March 17 and March 22, 1993, Type II monitoring wells MW-7 through MW-14 were installed. Monitoring wells MW-16 through 20, and MW-21 and MW-22 were installed between June 7 and June 8, 1993 and August 10, 1993, respectively.

1.4 Soil Quality

During the assessment activities performed by Law between December 1992 and August 1993, soil samples were collected from the auger cuttings stockpile (B-1 through B-3) and from borings MW-7 through MW-20 and laboratory-analyzed for TPH. Soil collected from borings MW-21 and MW-22 were analyzed for BTEX, MTBE, and TPH. Laboratory results indicated that TPH was not detected in any of the soil borings, but was detected in the auger cuttings stockpile sample. Laboratory results for boring MW-21 indicate the presence of BTEX and non-detectable concentrations of MTBE. BTEX and MTBE were not detected in soil sampled from MW-22.

During the week of September 29, 1996, six monitoring wells (MW-7B, MW-9B, MW-14B, MW-24, MW-25, and MW-26) and two soil borings (SB-1 and SB-2) were installed by MEADE at the site. Soil from the borings and monitoring wells were scanned in the field with an organic vapor analyzer (OVA). OVA measurements ranging from below detection limit to greater than 1000 ppm were observed in the soil cuttings. The OVA measurements are shown on the boring

records in Appendix B. Monitoring wells MW-7B, MW-9B, and MW-14B were installed to replace MW-7, MW-9, and MW-14. Monitoring wells MW-24, MW-25, and MW-26 were installed to further define the extents of the hydrocarbon plume. Boring logs and well construction logs are included in Appendix B and Appendix C, respectively.

The three soil borings SB-1, SB-2, and GP-1 were installed to a depth of 17 and 22, and 20 feet BLS, respectively. Soil samples were collected from SB-1 and SB-2 and analyzed for total organic carbon (TOC) and total petroleum hydrocarbons (TPH) by EPA Test Method 3550, respectively. In addition, soil from SB-2 was collected for grainsize analysis by hydrometer. TOC was reported as non-detectable at a depth of 17 feet BLS (SB-1). TPH was reported at 361 mg/kg at a depth of 22 feet BLS (SB-2). Soil samples collected from GP-1 were analyzed for BTEX, Naphthalene, and PAHs. The location of the soil borings are shown on Figure 2. The laboratory analytical reports for the soil samples collected in October 1996 are included in Appendix D.

1.5 Groundwater Quality

Appendix E contains the groundwater analytical results from the August 1994 sampling event performed by Law.

On August 13, 1996, as part of RBCA activities, groundwater samples were collected from site monitoring wells MW-11, MW-12, MW-17, MW-18, MW-19, MW-21, and MW-22 and analyzed for BTEX, naphthalene, and MTBE by EPA Test Method 8020/602, polynuclear hydrocarbons (PAHs) by EPA Test Method 8270, ethylene dibromide (EDB) by EPA Test Method 601, and lead. Liquid

phase hydrocarbons were detected in monitoring wells MW-1, MW-2, MW-4, MW-5, and MW-13. Monitoring wells MW-7, MW-8, MW-9, MW-10, MW-14, and MW-16 had little to no water and were not able to be sampled. Each well was purged of at least three volumes with a dedicated disposable bailer to ensure representative groundwater samples were collected. Groundwater samples were collected using dedicated disposable polyethylene bailers and preserved at 4° C for overnight transport to Specialized Assays, Inc. in Nashville, Tennessee, using standard chain-of-custody procedures.

On October 3, 1996, groundwater samples were collected from one existing monitoring well (MW-20) and six new monitoring wells (MW-7B, MW-9B, MW-14B, MW-24, MW-25, and MW-26) and analyzed for BTEX, naphthalene, and MTBE by EPA Test Method 8020/602, PAHs by EPA Test Method 8270, EDB by EPA Test Method 601, and lead. Liquid phase hydrocarbons were detected in monitoring wells MW-1, MW-2, MW-4, MW-5, and MW-13. Each well was purged of at least three volumes with a dedicated disposable bailer to ensure representative groundwater samples were collected. Groundwater samples were collected using dedicated disposable polyethylene bailers and preserved at 4° C for overnight transport to Specialized Assays, Inc. in Nashville, Tennessee, using standard chain-of-custody procedures.

PAHs, EDB, MTBE, and naphthalene were not detected during the August 1996 sampling event. Benzene and toluene were detected at concentrations of 2.2 and 1 in monitoring wells MW-12 and MW-22, respectively. Benzene and toluene were detected below the RBSL of 5 µg/l and 1000 µg/l, respectively. Benzene and toluene were the only BTEX constituents detected during the sampling event. Lead was reported in all of the sampled monitoring wells at

concentrations ranging from 0.004 mg/l in MW-17 to 0.121 mg/l in MW-21. A summary of organic constituents detected in groundwater at the site is shown in Table 2a and Table 2b. The laboratory analytical report for the August 1996 sampling event is included in Appendix F.

During the October 1996 sampling event, benzene was reported above the RBSL of 5 µg/l in MW-7B, MW-9B, MW-14B, MW-20, MW-25, and MW-26 at concentrations ranging from 35 µg/l in MW-7B to 10,800 µg/l in MW-20. Toluene was reported above the RBSL of 1000 µg/l in MW-14B, MW-20, and MW-26 at concentrations ranging from 17,800 µg/l in MW-14B to 18,370 µg/l in MW-26. Ethylbenzene was reported above the RBSL of 700 µg/l in MW-14B, MW-20, MW-25, and MW-26 at concentrations ranging from 1900 µg/l in MW-20 to 2300 µg/l in MW-14B. Xylene was reported above the RBSL of 10,000 µg/l in MW-14B at a concentration of 10,600 µg/l. MTBE was reported above the RBSL of 40 µg/l in MW-20 and MW-25 at concentrations of 1800 µg/l and 447 µg/l, respectively. EDB was not detected in any of the groundwater samples. Naphthalene was the only PAH detected in groundwater samples MW-7B, MW-14B, MW-20, MW-24, MW-25, and MW-26. Naphthalene (as a PAH) concentrations ranged from 18 µg/l in MW-16 to 695 µg/l in MW-14B. Naphthalene was reported above the RBSL of 25 µg/l in MW-25 at a concentration 480 µg/l. Lead was reported in all of the sampled monitoring wells at concentrations ranging from 0.004 mg/l in MW-24 to 0.302 mg/l in MW-20. A summary of organic constituents detected in groundwater at the site is shown in Table 2a and Table 2b. The laboratory analytical report for the October 1996 sampling event is included in Appendix G.

1.6 Aquifer Characteristics

To estimate the hydraulic properties of the surficial aquifer, in-flow permeability tests were conducted on monitoring wells MW-7B, MW-14B, and MW-25 on October 11, 1996. The slug tests were performed by removing a column of water from each well and collecting recovery data as the water level recovered toward static. The recovery data was then evaluated using the Bouwer and Rice (1976) bail test analysis. The data, graphs, and calculations are presented in Appendix H. The average hydraulic conductivity was estimated to be 0.11 feet per day (ft/day).

The 24 hour draw-down test, previously approved by SCDHEC was not conducted at the site. The initial intent of performing the draw-down test was to obtain additional data concerning the potential impact of contaminants on to local receptors. Based on the receptor survey, no surrounding water supply wells were identified within 1500 feet of the site, therefore the test was omitted.

To estimate the average groundwater velocity through the major flow zone, the hydraulic conductivity in the upper zone of the surficial aquifer and a modified Darcian flow equation were used. Based on a hydraulic conductivity (k_h) of 0.11 ft/day, an average groundwater gradient (I) of 0.02 feet/foot, and an estimated porosity (n) of 0.15 percent (Heath, 1983), the average groundwater velocity (v) throughout the upper surficial aquifer at the site is estimated to be between 5 and 10 feet per year. The actual flow velocity may be more or less depending on flow paths, influences of water recharge, and man-made features. This calculated groundwater flow velocity may be greater than the rate of dissolved

hydrocarbon migration because of the effects of adsorption, dispersion, and biodegradation. The equations used for estimating the groundwater velocity are included in Appendix H.

As bedrock was not encountered during drilling activities, thickness (b) of the saturated surficial aquifer is estimated to be at least 50 feet. Based on this aquifer thickness and an average horizontal hydraulic conductivity (k_h) of 0.11 ft/day, the transmissivity (T) of the surficial aquifer is estimated to be 5.5 ft^2/day. The equation used for estimating the transmissivity of the surficial aquifer is included in Appendix H.

On October 10, 1996, MEADE performed a free-product recovery test on monitoring wells MW-1 and MW-4 and recovery well RW-1. Product thickness recovered approximately 68% in RW-1 over a period of 138 minutes. Product recovered approximately 40% in MW-1 over a period of 1070 minutes. The product in MW-4 recovered approximately 52% over a period of 1010 minutes. Free-product recovery test results and calculations are located in Appendix I.

2.0 Receptor Survey and Utilities

MEADE performed an area reconnaissance along accessible roadways within a 1000-foot radius of the site on October 10, 1996. The purpose of the reconnaissance was to identify potential receptors and exposure routes, including water supply wells, basements, surface water bodies, and subsurface utilities.

A tributary that drains to Lake Thurmond was observed by MEADE personnel approximately 800 feet southeast of the site. This surface water body is considered to be the nearest off-site potential receptor for petroleum-impacted groundwater. The surface water body feeding Lake Thurmond was considered to be a recreational use waterway. Exposure form this surface water body would be limited to dermal contact.

Water is provided to the area by the Town of McCormick. Water is supplied to the site from a water line which runs adjacent to the property along S.C. Hwy 28. According to Mr. Ben Lewis of the Town of McCormick Commissioners of Public Works, the depth to the water lines is approximately 3 to 4 feet below land surface (BLS). No water supply wells were observed by MEADE personnel within 1500 feet of the site.

Storm drains are located along the south, west, and north side of the property to an approximate depth of 5 feet BLS. Sanitary sewers are located along S.C. Hwy 28 and 5th Avenue. According to Mr. John Langley of the Town of McCormick Commissioners of Public Works, sanitary sewer lines are approximately 8 feet BLS. A buried fiber optics phone cable is located parallel to S.C. Hwy 28. According to Bill Williams of West Carolina Rural Telephone Co-op., Inc., the fiber optic phone cable is approximately 3 to 10 feet BLS. No basements were observed on-site or on adjacent properties.

A site conceptual model for current land use and future land use is provided in Table 3a and Table 3b, respectively.

3.0 Soil Leachability Model

The soil leachability model described in the SCDHEC document Risk Based Corrective Action for Petroleum Releases, dated June 1995, was performed on the worst case soil sample collected at the site to determine the likelihood of leachates emanating from the petroleum impacted soils affecting the groundwater. The results of the model indicate that BTEX and naphthalene (located in the soils at the site) would continue to impact groundwater. The calculations and results for this model are included in Appendix J.

4.0 Free Product Recovery Recommendation

Free phase product thickness measurements were made to estimate the extent and volume of free product at the site. The volume of product was estimated using the product thickness data and one grain size analysis. SPILLCAD computer model was utilized in evaluating the site characteristics for free product recovery (literature provided in Appendix K). The data input is provided in Appendix K. Based on the product thickness measurements and the grain size data, the volume of free product was estimated at approximately 5,400 gallons.

Two free product recovery models were compiled to represent two conditions. The first condition, Case I, was based on a regional ground water fluctuation of 10 feet. Case II was based on no ground water fluctuation. Based on the ground water fluctuation of 10 feet at the site, recoverable volume was restricted according to the SPILLCAD model. The ground water fluctuation at the site has been recorded at nearly 10 feet. Free product recovery tests also indicated a low recovery rate. SPILLCAD model results estimated an

approximate 0.05 gallon per minute pumping rate. Given the water table fluctuation and low recovery conditions at the site, we believe that additional measures will be necessary to achieve product recovery. A duel phase high vacuum extraction system could provide enhanced recovery. The existing vertical recovery wells should be upfitted with high vacuum. In addition, MEADE recommends conducting a pilot test to evaluate the effectiveness of high vacuum extraction using horizontal recovery well(s). Horizontal well extraction could provide improved product recovery at the site.

5.0 Contaminant Migration Modeling

BIOTRANS computer model was utilized to evaluate contaminant migration for benzene at the site. The BIOTRANS model emulates areal transport of multiple dissolved contaminants and oxygen. BIOTRANS computer model literature is contained in Appendix L. Our interpretation of model results indicates that contaminant degradation would be limited due to the free product and the limited oxygen content in the groundwater at the site. Model results based on a 15 year release period indicated that benzene would not substantially degrade during that time under the given condition. An Increase in oxygen concentration and a reduction of free product in the ground water would should improve degradation rates. MEADE recommends free product removal at the site in order to achieve an optimal environment for contaminant degradation.

6.0 Site Priority Classification

Based on SCDHEC's document Risk Based Corrective Action for Petroleum Releases, a site classification into categories based on the current and projected

degree of hazard to human health and the environment. The Classification system is ranked from Classification 1 (highest priority) to Classification 5 (lowest priority).

Leann Brittan of SCDHEC reported that the Former Crown Station SC-576 is categorized as a Classification 2ab due to free product existing in a monitoring well measured at greater than one (1) foot thickness.

7.0 Qualification of Report

The activities and evaluative approached used in this assessment are consistent with those normally employed in hydrogeological assessment and waste-management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpolation of subsurface data between borings.

8.0 REFERENCES

American Society for Testing and Materials, 1995, "Standard Guide for Risk-Based Corrective Action at Petroleum Release Sites", ASTM Standard E1739-95.

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Law Engineering and Environmental Services, January 5, 1994, Assessment Report Former Crown Station No. SC 576.

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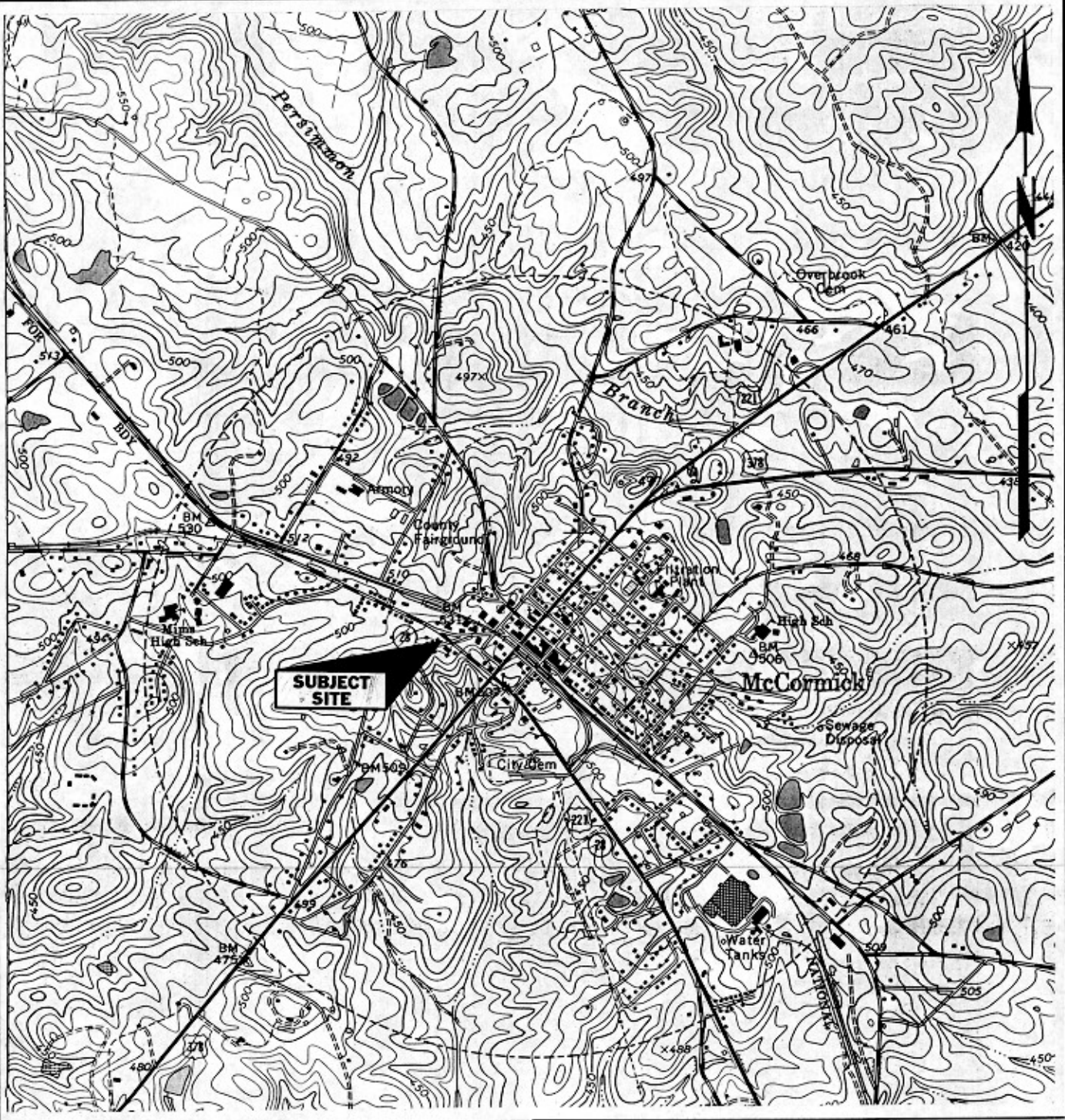
FIGURES



MEADE engineering & environmental, P.C.

GENERAL VICINITY MAP

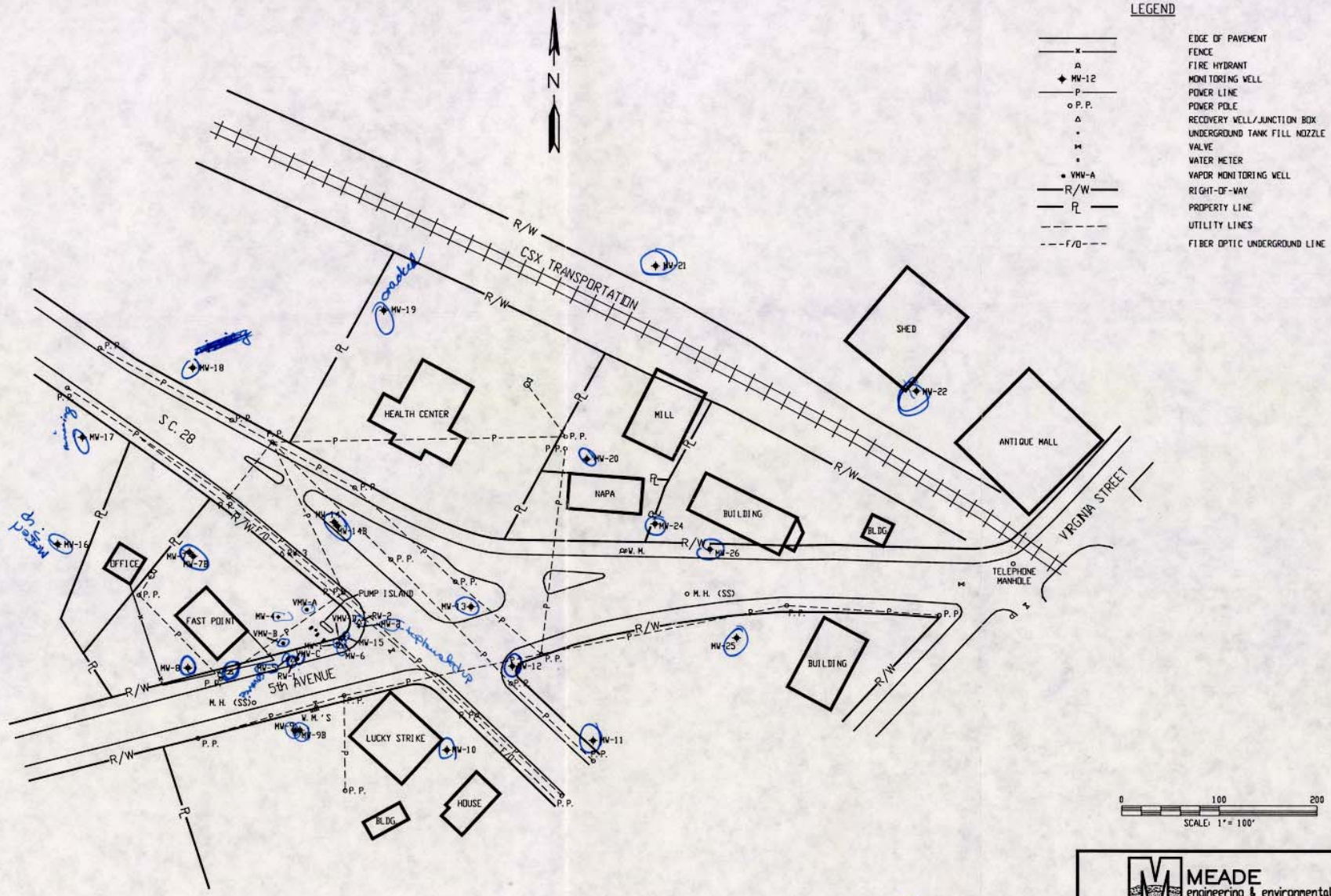
Former Crown Service Station SC-576
200 North Mine Street (SC Hwy 28)
McCormick County, McCormick, South Carolina

REF: USGS 7.5 MIN. TOPO. QUAD.
McCormick, SC
Dated 1964
Photorevised 1986

SCALE: 1 IN. = 2000 FT.

Job No. 209.60

Figure No. 1



REFERENCE:
Physical survey prepared by Davis & Floyd, Inc.
Dated: August 13, 1996
ACAD FILE: 209base.dwg
Revised 10/15/96

NOTES:
1)Property lines and Right-of-Way lines were obtained from tax map/aerial photo overlay McCormick 126-05 and 45065 277 113-x5, repectively. Boundary lines were not verified by a surveyor

PUBLICATION OR REUSE OF THESE DRAWINGS OR ANY DETAILS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

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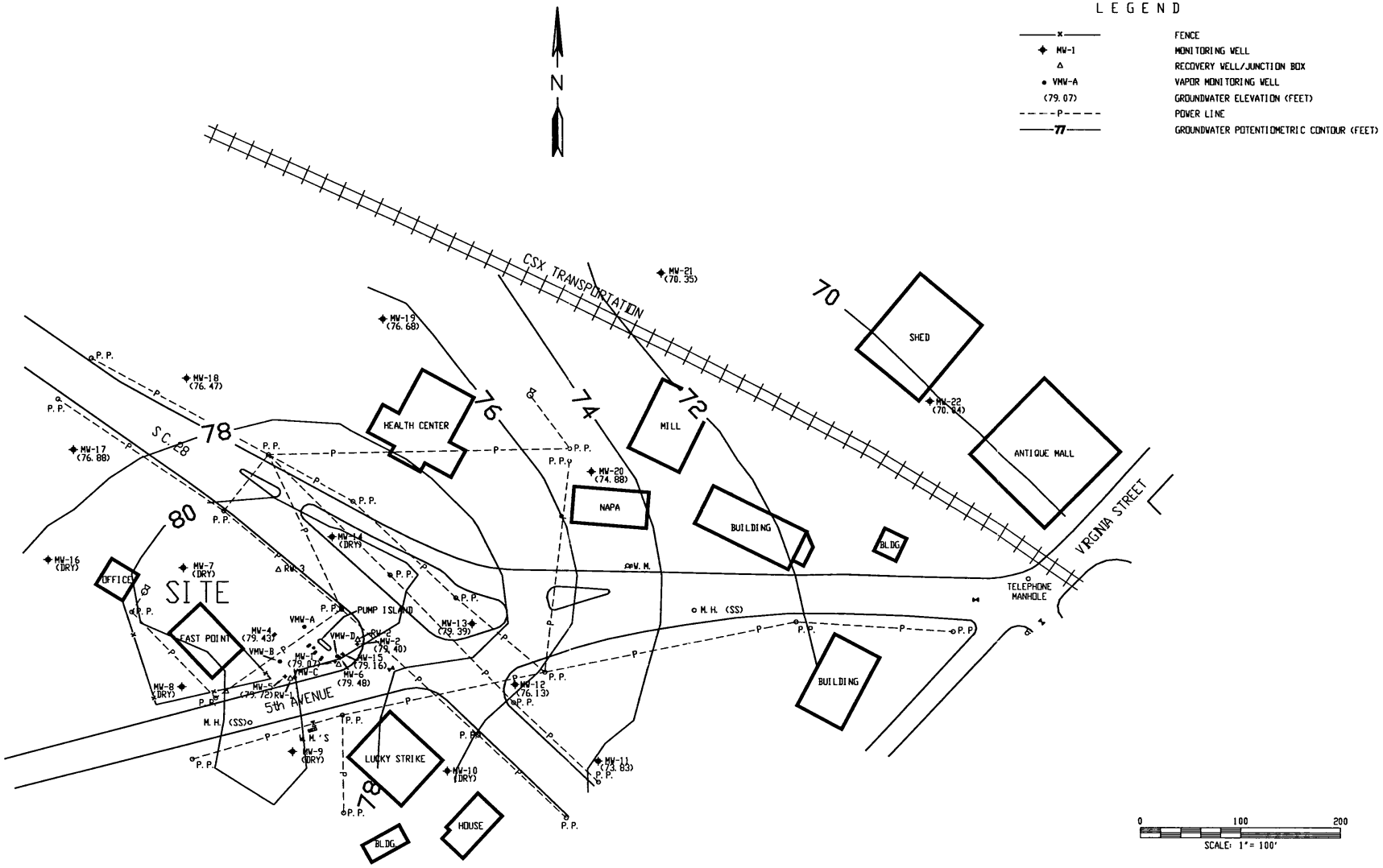
FORMER CROWN STATION SC-576
McCORMICK, S.C.

SITE PLAN

PROJ.#:209.60	DATE: 8/13/96	SCALE: 1"=100'	FIGURE: 2



REFERENCE:
Physical survey prepared by Davis & Floyd, Inc.
Dated: August 13, 1996
ACAD FILE: 209GW.dwg

NOTES:
1) Property lines and Right-of-Way lines were obtained from tax map/aerial photo overlay McCormick 126-05 and 45065 277 113-x5, repectively. Boundary lines were not verified by a surveyor
2) Vapor wells, recovery wells, and monitoring wells (MW-1 through MW-22) were installed by others.
3) Contours computer generated by "SpillCad" and modified by hand.

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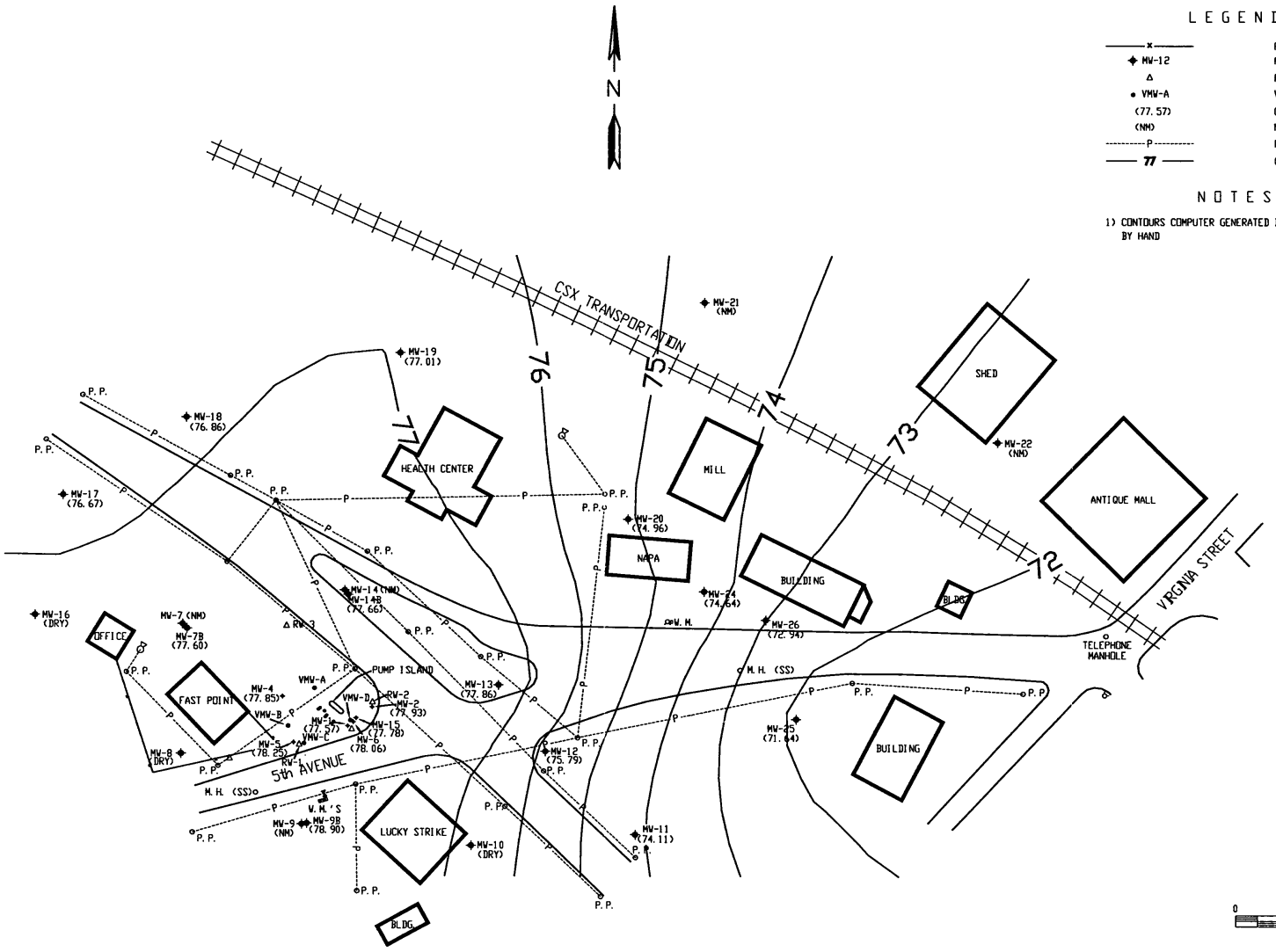
FORMER CROWN STATION SC-576
McCORMICK, S.C.

POTENTIOMETRIC SURFACE MAP
AUGUST 13, 1996

PROJ.#:209.60	DATE: 8/13/96	SCALE: 1"=100'	FIGURE: 3



LEGEND

——x——	FENCE
✦ MW-12	MONITORING WELL
△	RECOVERY WELL
• VMW-A	VAPOR MONITORING WELL
(77.57)	GROUNDWATER ELEVATION (FEET)
(NM)	NOT MEASURED
---------P---------	POWER LINE
—— 77 ——	GROUNDWATER POTENTIOMETRIC CONTOUR (FEET)

NOTES

1) CONTOURS COMPUTER GENERATED BY "SPILLCAD" AND MODIFIED BY HAND

0 100 200

SCALE: 1" = 100'

MEADE engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

GROUNDWATER POTENTIOMETRIC SURFACE MAP
October 11, 1996

PROJ.#:209.60	DATE: 10/11/96	SCALE: 1"=100'	FIGURE: 4

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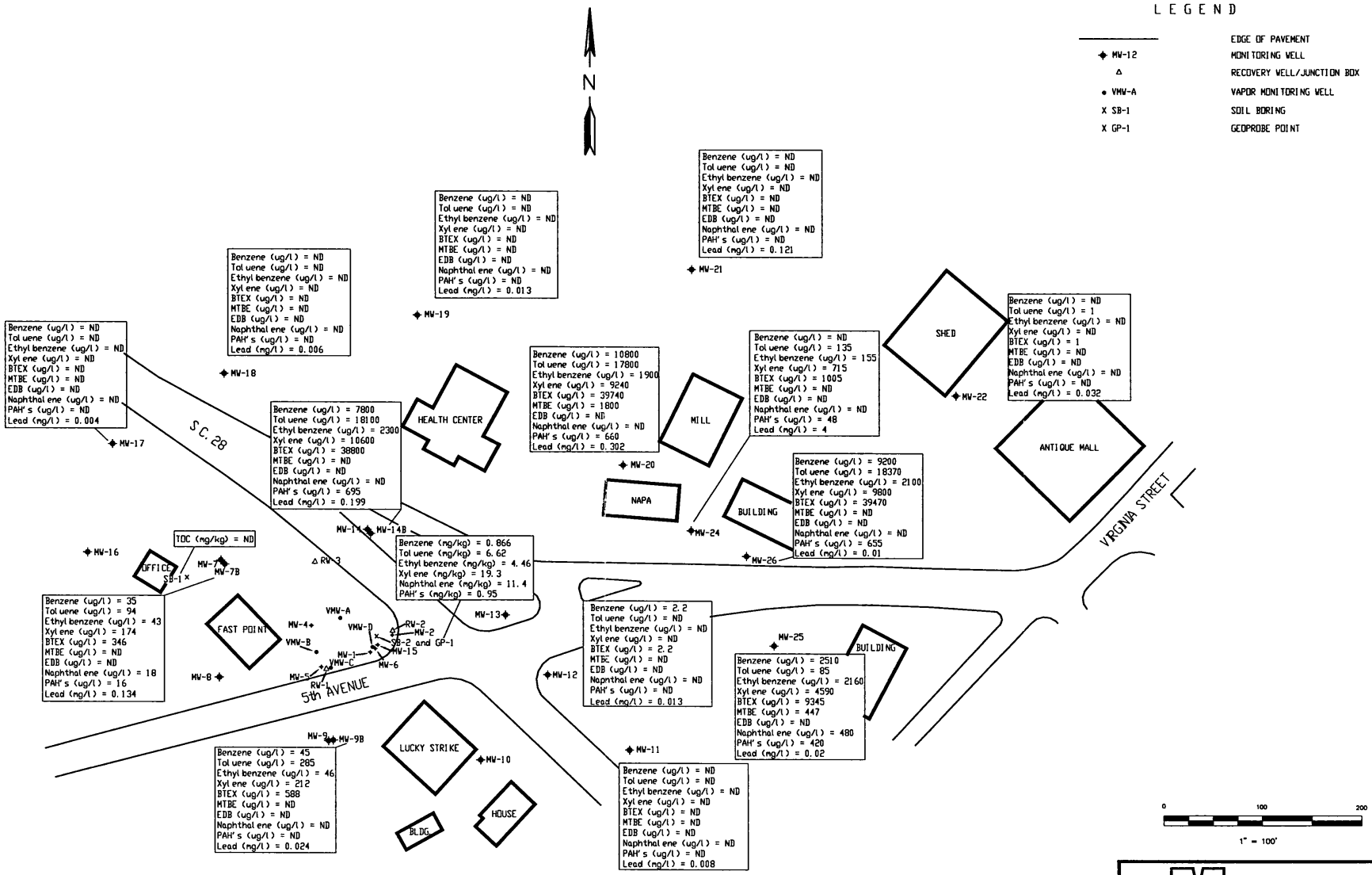
REF: oct96gw



ACAD FILE: analytical.dwg

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MEADE engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

ANALYTICAL MAP

PROJ.#:209.60	DATE: 8/13/96	SCALE: 1"=100'	FIGURE: 5

TABLES

TABLE 1a

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	Total Depth (ft)	Screen Interval (ft)	Top of Casing (ft)	Date Measured	Depth to Product (ft)	Depth to Water (ft)	Groundwate Elevation (ft)	Product Thickness (ft)	Casing Diameter (in)
MW-01			100.03	8/13/96	20.12	23.5	79.07	3.38	2
				10/11/96	22.20	23.23	77.57	1.03	
MW-02			99.31	8/13/96	19.59	20.89	79.40	1.30	2
				10/11/96	20.75	23.28	77.93	2.53	
MW-04			101.51	8/13/96	21.42	24.06	79.43	2.64	2
				10/11/96	23.45	24.29	77.85	0.84	
MW-05			102.16	8/13/96	21.89	24.08	79.72	2.19	2
				10/11/96	23.40	25.44	78.25	2.04	
MW-06			100.45	8/13/96		20.97	79.48		2
				10/11/96		22.39	78.06		
MW-07	19.64	10-19.6	100.93	8/13/96		DRY	DRY		2
				10/11/96		NM	NM		
✓ MW-07B	30	15-30	101.43	10/11/96		23.83	77.60		2
MW-08	20	10-20	103.85	8/13/96		DRY	DRY		2
				10/11/96		DRY	DRY		
MW-09	18	8-18	99.13	8/13/96		DRY	DRY		2
				10/11/96		NM	NM		
✓ MW-09B	30	15-30	98.99	10/11/96		20.09	78.90		2
MW-10	18	8-18	93.35	8/13/96		DRY	DRY		2
				10/11/96		DRY	DRY		
MW-11	15	5-15	85.80	8/13/96		11.97	73.83		2
				10/11/96		11.69	74.11		
MW-12	23.5	8.5-23.5	94.95	8/13/96		18.82	76.13		2
				10/11/96		19.16	75.79		
MW-13	25	9.5-25	98.25	8/13/96	18.77	19.15	79.39	0.38	2
				10/11/96	20.29	20.7	77.86	0.41	
MW-14	20.5	0.5-20.	100.59	8/13/96		DRY	DRY	~~0.60~~	2
				10/11/96		NM	NM		
✓ MW-14B	40	20-40	100.74	10/11/96		23.08	77.66		2

NM = Not Measured

TABLE 1b

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	Total Depth (ft)	Screen Interval (ft)	Top of Casing (ft)	Date Measured	Depth to Product (ft)	Depth to Water (ft)	Groundwate Elevation (ft)	Product Thickness (ft)	Casing Diameter (in)
MW-15	130	125-130	100.08	8/13/96 10/11/96		20.92 22.3	79.16 77.78	~~0.70~~	2
MW-16	23.5	13-23.5	100.57	8/13/96 10/11/96		DRY DRY	DRY DRY	~~0.60~~	2
MW-17	23.5	13-23.5	96.79	8/13/96 10/11/96		19.91 20.12	76.88 76.67		2
MW-18	23.5	13-23.5	95.79	8/13/96 10/11/96		19.32 18.93	76.47 76.86	2.00	2
MW-19	22.5	12-22.5	94.61	8/13/96 10/11/96		17.93 17.6	76.68 77.01		2
MW-20	38.5	18-38.5	98.9	8/13/96 10/11/96	24.01	24.02 23.94	74.88 74.96	0.01	2
MW-21			97.54	8/13/96 10/11/96		27.19 NM	70.35		2
MW-22	40	30-40	100.87	8/13/96 10/11/96		30.83 NM	70.04		2
MW-24	40	35-40	97.17	10/11/96		22.53	74.64		2
MW-25	30	15-30	94.97	10/11/96		23.33	71.64		2
MW-26	30	15-30	96.36	10/11/96		23.42	72.94		2

NM = Not Measured

TABLE 2a

SUMMARY OF ORGANIC CONSTITUENTS DETECTED IN GROUNDWATER
Former Crown Station No. SC 576, MCCormick, S.C.
Meade Project No. 209.60

	Concentration (µg/l)							
	MW-7B	MW-9B	MW-11	MW-12	MW-14B	MW-17	MW-18	RBSL'S[4]
Date Sampled	10/3/96	10/3/96	8/13/96	8/13/96	10/3/96	8/13/96	8/13/96	(µg/l)
Benzene	35	45	ND	2.2	7800	ND	ND	5
Toluene	94	285	ND	ND	18100	ND	ND	1000
Ethylbenzene	43	46	ND	ND	2300	ND	ND	700
Xylenes	174	212	ND	ND	10600	ND	ND	10000
BTEX	346	588	ND	2.2	38800	ND	ND	
MTBE[1]	ND	ND	ND	ND	ND	ND	ND	40
EDB[2]	ND	ND	ND	ND	ND	ND	ND	
PAH's[3]	16	ND	ND	ND	695	ND	ND	
Naphthalene	18	ND	ND	ND	ND	ND	ND	25
Lead, mg/l	0.134	0.024	0.008	0.013	0.199	0.004	0.006	

[1] EDB: 1,2-Dibromoethane
[2] MTBE: Methyl-t-butyl ether
[3] PAH's: Polynuclear Hydrocarbons
[4] RBSL's = Risk-Based Screening Levels for Groundwater
ND = Not Detected

TABLE 2b

SUMMARY OF ORGANIC CONSTITUENTS DETECTED IN GROUNDWATER
Former Crown Station No. SC 576, MCCormick, S.C.
Meade Project No. 209.60

	Concentration (µg/l)							
	MW-19	MW-20	MW-21	MW-22	MW-24	MW-25	MW-26	RBSL'S[4]
Date Sampled	8/13/96	10/3/96	8/13/96	8/13/96	10/3/96	10/3/96	10/3/96	(µg/l)
Benzene	ND	10800	ND	ND	ND	2510	9200	5
Toluene	ND	17800	ND	1	135	85	18370	1000
Ethylbenzene	ND	1900	ND	ND	155	2160	2100	700
Xylenes	ND	9240	ND	ND	715	4590	9800	10000
BTEX	ND	39740	ND	1	1005	9345	39470	
MTBE[1]	ND	1800	ND	ND	ND	447	ND	40
EDB[2]	ND	ND	ND	ND	ND	ND	ND	
PAH's[3]	ND	660	ND	ND	48	420	655	
Naphthalene	ND	ND	ND	ND	ND	480	ND	25
Lead, mg/l	0.013	0.302	0.121	0.032	0.004	0.020	0.010	

[1] EDB: 1,2-Dibromoethane
[2] MTBE: Methyl-t-butyl ether
[3] PAH's: Polynuclear Hydrocarbons
[4] RBSL's = Risk-Based Screening Levels for Groundwater
ND = Not Detected

Table 3a
Complete Exposure Pathways
Former Crown Station SC-576
200 North Mine Street (SC HWY 28)
(Current Land Use)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Evaluation?	Reason for Selection or Non-Selection
Off-site resident	Ingestion of groundwater from impacted water well	No	No drinking water wells in area
	Direct contact with surface soil	Yes	Off-site soil is impacted
	Inhalation while showering	No	Residents do not use groundwater for showering
	Dermal contact while showering	No	Residents do not use groundwater for showering
	Inhalation of volatiles	Yes	Volatile emissions are possible
On-site resident	Ingestion of groundwater	No	No residents on-site
	Direct contact with surface soil	No	
	Inhalation while showering	No	
	Dermal contact while showering	No	
	Inhalation of volatiles	No	
Worker	Inhalation of groundwater	No	No water wells located on-site
	Direct contact with surface soil	Yes	On-site soil is impacted
	Inhalation while showering	No	N/A
	Dermal contact while showering	No	N/A
	Inhalation of volatiles	Yes	Volatile emissions are possible
Visitor	Ingestion of groundwater	No	No water well are located on-site
	Direct contact with surface soil	Yes	On-site soil is impacted
	Inhalation while showering	No	N/A
	Dermal contact while showering	No	N/A
	Inhalation of volatiles	Yes	Volatile emissions are possible

Table 3b
Complete Exposure Pathways
Former Crown Station SC-576
200 North Mine Street (SC HWY 28)
(Future Land Use)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Evaluation?	Reason for Selection or Non-Selection
Off-site resident	Ingestion of groundwater from impacted water well	Yes	No drinking water wells in area, but possible future installation
	Direct contact with surface soil	Yes	Potential for house with basement
	Inhalation while showering	Yes	Residents use groundwater for showering
	Dermal contact while showering	Yes	Residents use groundwater for showering
	Inhalation of volatiles	Yes	Volatile emissions are possible
On-site resident	Ingestion of groundwater	No	No residents on-site, property is zoned commercially and is reasonably anticipated to remain commercial
	Direct contact with surface soil	No	
	Inhalation while showering	No	
	Dermal contact while showering	No	
	Inhalation of volatiles	No	
Worker	Inhalation of groundwater	No	No water wells located on-site
	Direct contact with surface soil	Yes	On-site soil is impacted
	Inhalation while showering	No	N/A
	Dermal contact while showering	No	N/A
	Inhalation of volatiles	Yes	Volatile emissions are possible
Visitor	Ingestion of groundwater	No	No water well are located on-site
	Direct contact with surface soil	Yes	On-site soil is impacted
	Inhalation while showering	No	N/A
	Dermal contact while showering	No	N/A
	Inhalation of volatiles	Yes	Volatile emissions are possible

APPENDICES

APPENDIX A
APPROVED SCDHEC COST ESTIMATE

ASSESSMENT COMPONENT COST PROPOSAL

SOUTH CAROLINA
Department of Health and Environmental Control
Bureau of Underground Storage Tank Management
State Underground Petroleum Environmental Response Bank

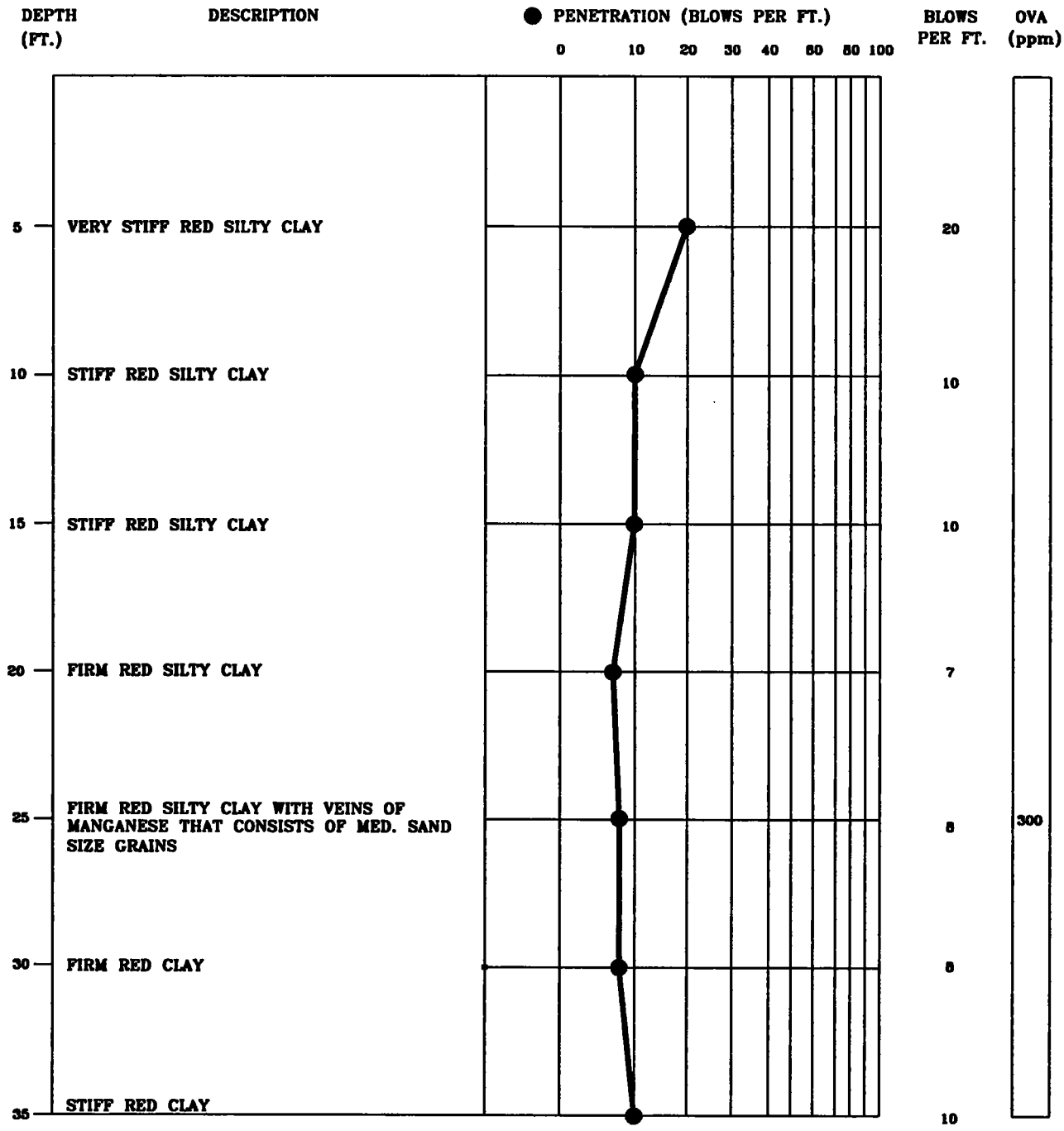
Site Name: Former Crown Station SC-576
Site ID #: 06443 CP#: 01955

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. Plan Preparation*	1	x	$100.00	$100.00
2. Receptor Survey*	1	x	$500.00	$500.00
3. Comprehensive Survey	1	x	$1,000.00	$1,000.00
4. Mob/Demob (List component #)				
A. Equipment 6, 9	2	x	$500.00	$1,000.00
B. Personnel 2/10b, 6/12/13, 17	4	x	$250.00	$1,000.00
5. Soil Borings (hand auger)*		feet x	$11.00	$0.00
6. Soil Borings (drilled) and Field Screening*	(includes collection and quantification) 350	feet x	$17.00	$5,950.00
7. Soil Leachability Model	1	x	$200.00	$200.00
8. Abandonment* (separate from #5 and #6)	250	feet x	$4.00	$0.00 $1,000.00
9. Well Installation*	(includes drilling costs)			
A. Water Table (hand auger)		feet x	$17.00	$0.00
B. Water Table	60	feet x	$35.00	$2,100.00
C. Telescoping		feet x	$55.00	$0.00
D. Rock Drilling	50	feet x	$55.00	$2,750.00
10. Ground-water sample collection				
A. Initial event	5	samples x	$50.00	$250.00
B. Subsequent event*	23	samples x	$50.00	$1,150.00
11. Analyses-Groundwater	(See RA Guidance for site specific analyses)			
A. BTEX+Napth.+MTBE	28	samples x	$100.00	$2,800.00
B. PAH's	28	samples x	$120.00	$3,360.00
C. Lead	28	samples x	$20.00	$560.00
D. EDB	28	samples x	$55.00	$1,540.00
E. 8 RCRA Metals		samples x	$140.00	$0.00
F. TPH (9070)		samples x	$55.00	$0.00
G. pH		samples x	$10.00	$0.00
H. BOD		samples x	$40.00	$0.00
Analyses-Soil				
I. BTEX + Napth.		samples x	$100.00	$0.00
J. PAH's		samples x	$120.00	$0.00
K. 8 RCRA Metals		samples x	$150.00	$0.00
L. TPH (9071)		samples x	$60.00	$0.00
M. TPH (3550)	1	samples x	$65.00	$65.00
N. Grain size / hydrometer	1	samples x	$63.00	$63.00
O. Total Organic Carbon	1	samples x	$35.00	$35.00
12. Aquifer Characterization*				
A. Pumping Test	24	hours x	$120.00	$2,880.00
B. Slug test		tests x	$150.00	$0.00
13. Free Product Recovery Rate Test*	3	tests x	$120.00	$360.00
14. Fate/Transport Modeling				
A. Mathematical Model	1	models x	$300.00	$300.00
B. Computer Model	2	models x	$500.00	$1,000.00
15. Risk Evaluation				
A. Tier I		x	$300.00	$0.00
B. Tier II	1	x	$500.00	$500.00
16. Subsequent Survey*		x	$260.00	$0.00
17. Disposal				
A. Wastewater				
1. Purging/Sampling	5	drums x	$90.00	$450.00
2. Pumping test	7200	gallons x	$0.60	$4,320.00
B. Free Product	1	drums x	$110.00	$110.00
C. Soil (Treatment/Disposal)*		tons x	$50.00	$0.00
	30	drums x	$50.00	$1,500.00
18. Miscellaneous				
		x		
		x		
		x		
		x		
19. Report/Project Management and Coordination	0.15	x	(SUBTOTAL) $36,843.00	$5,526.45
20. Total				$42,369.45

COSTmstr(6/14/99)

FILE

APPENDIX B
BORING LOGS



BORING AND SAMPLING MEETS ASTM D 1586.
PENETRATION IS THE NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

DRILLING CONTRACTOR: GROUNDWATER PROTECTION, INC.

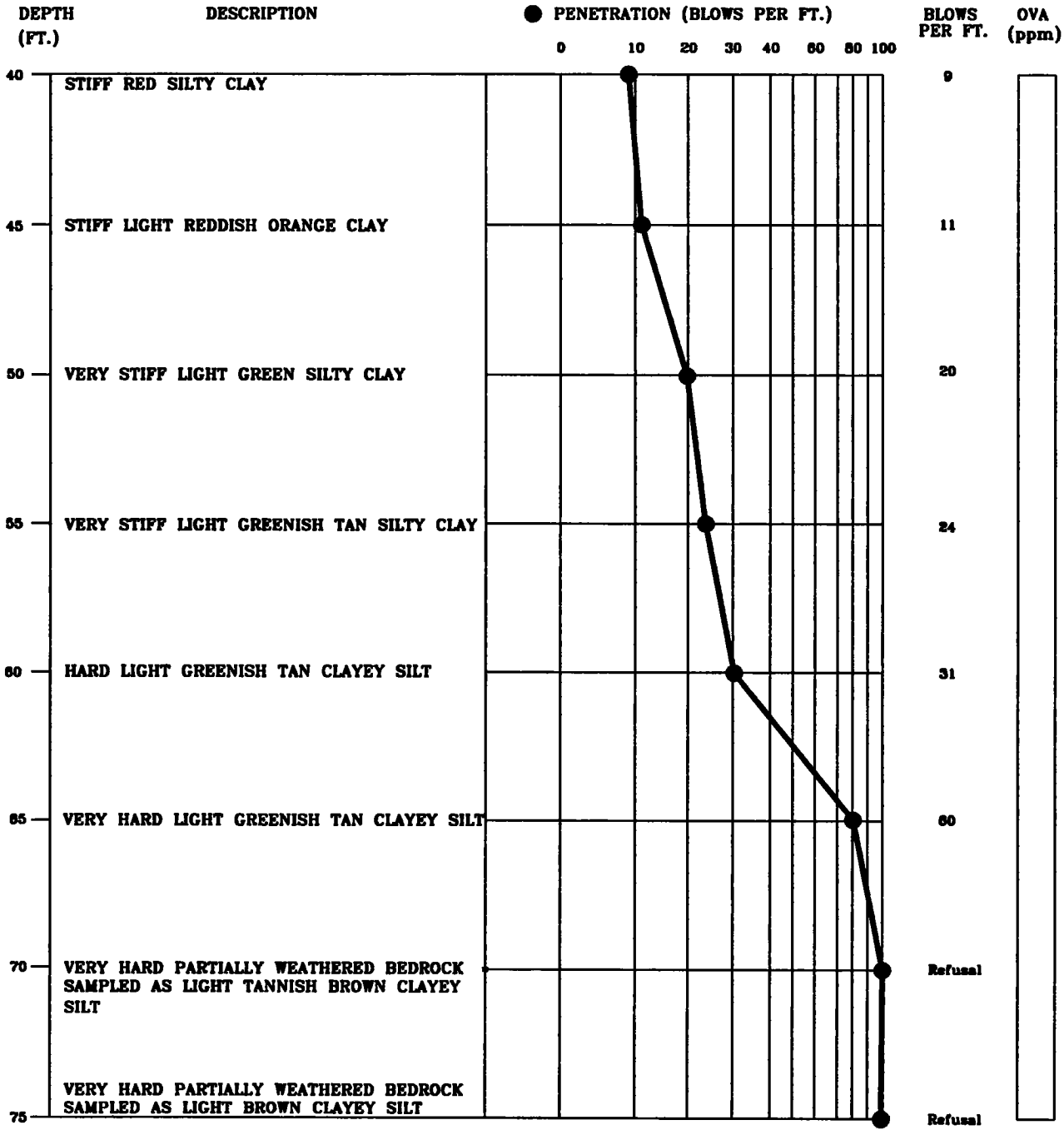
DATE DRILLED: OCTOBER 1, 1996

MEADE engineering & environmental, P.C.

TEST BORING RECORD

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

JOB NO. 209.60 | BORING: MW-24



BORING AND SAMPLING MEETS ASTM D 1586.
PENETRATION IS THE NUMBER OF BLOWS
OF 140 LB HAMMER FALLING 30 IN.
TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

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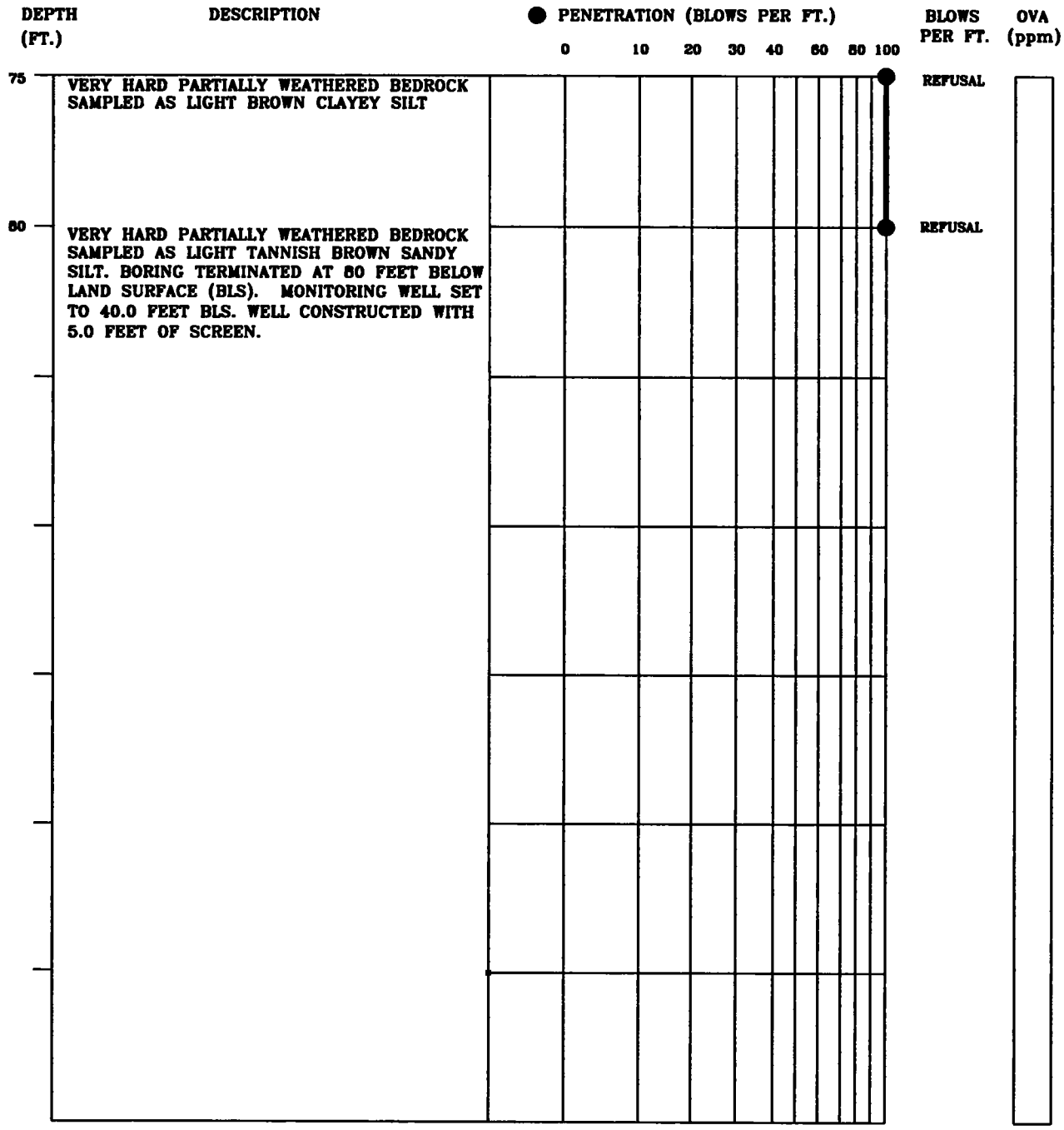
MEADE
engineering & environmental, P.C.

TEST BORING RECORD
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

JOB NO. 209.60 | BORING: MW-24



BORING AND SAMPLING MEETS ASTM D 1586.
PENETRATION IS THE NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

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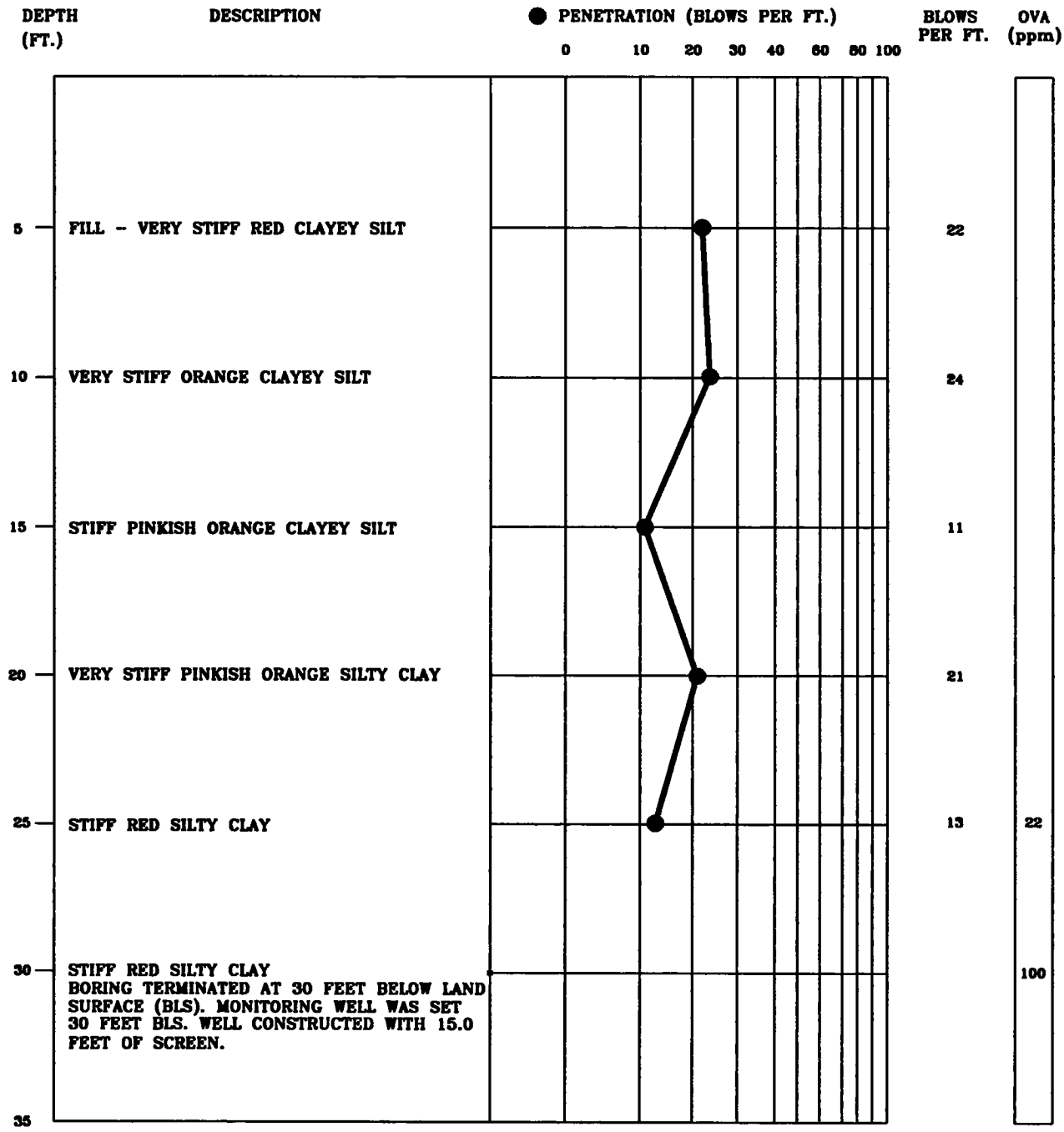
TEST BORING RECORD

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

JOB NO. 209.60 | BORING: MW-24



BORING AND SAMPLING MEETS ASTM D 1586.
PENETRATION IS THE NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

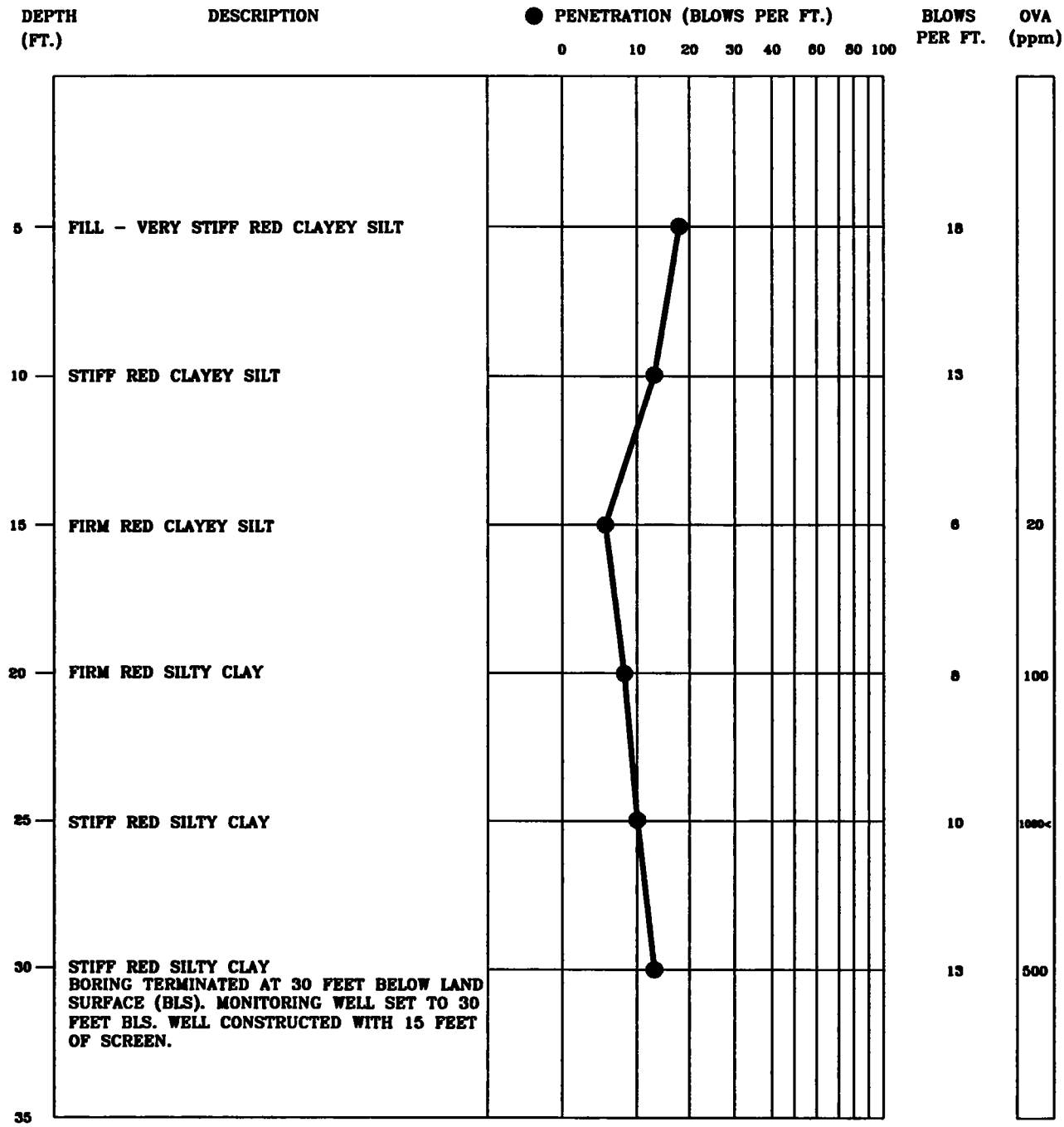
DRILLING CONTRACTOR: GROUNDWATER PROTECTION, INC.

DATE DRILLED: OCTOBER 2, 1996

MEADE engineering & environmental, P.C.

TEST BORING RECORD
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

JOB NO. 209.60 | BORING: MW-25



BORING AND SAMPLING MEETS ASTM D 1586.
PENETRATION IS THE NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

DRILLING CONTRACTOR: GROUNDWATER PROTECTION, INC.

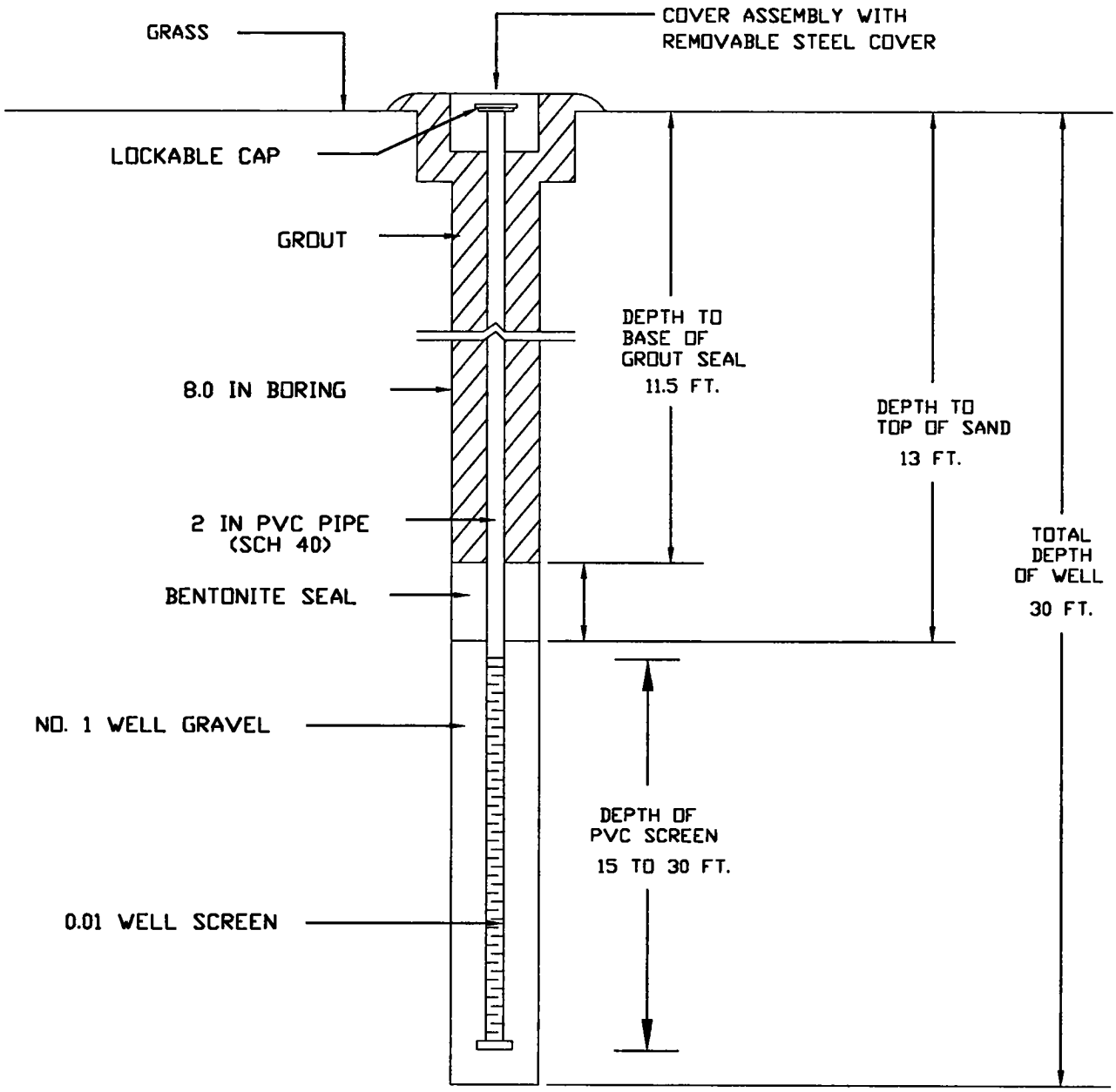
DATE DRILLED: OCTOBER 2, 1996

MEADE
engineering & environmental, P.C.

TEST BORING RECORD
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

JOB NO. 209.60 | BORING: MW-26

APPENDIX C
WELL CONSTRUCTION LOGS

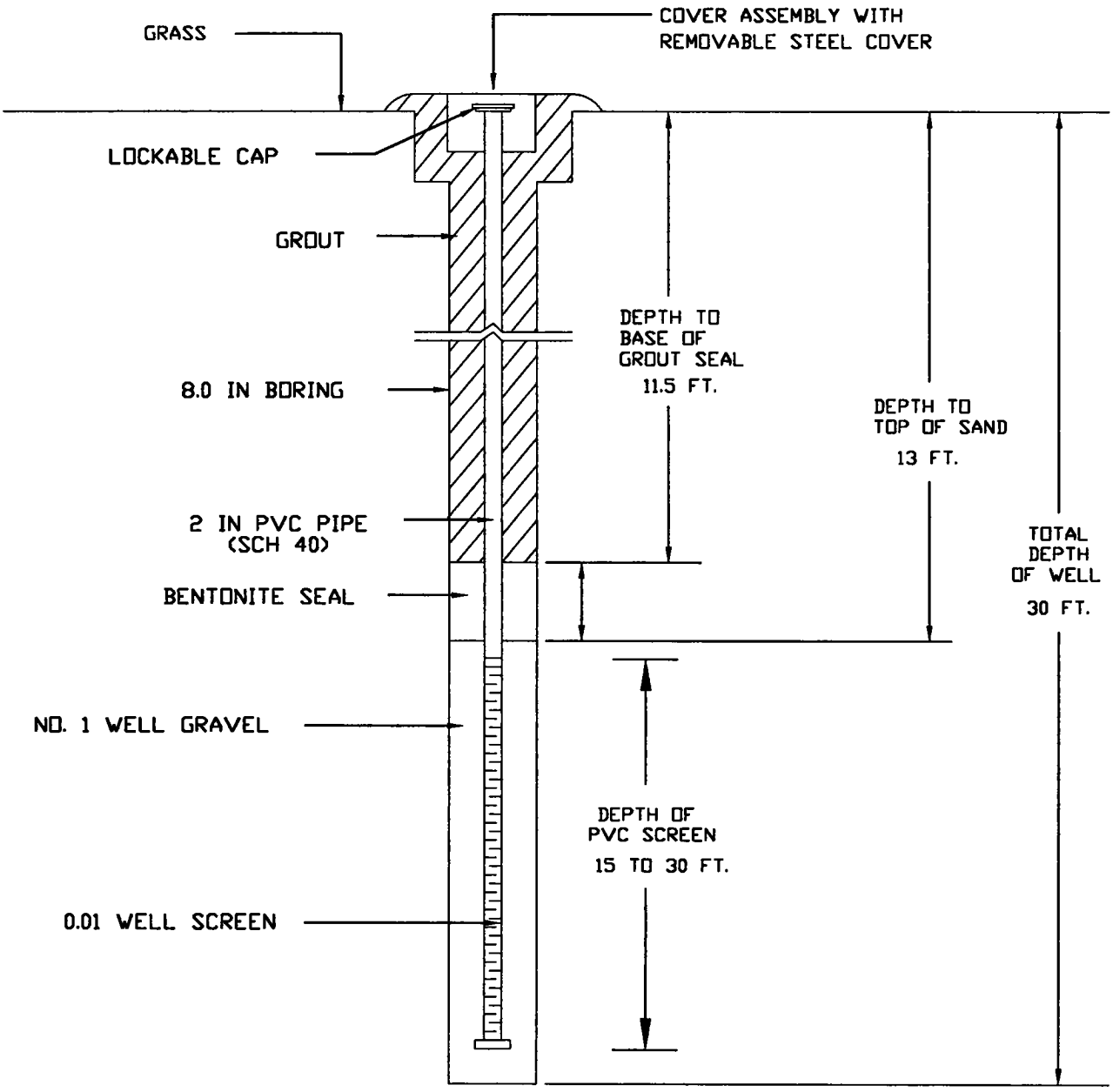


MW-7B

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-7B

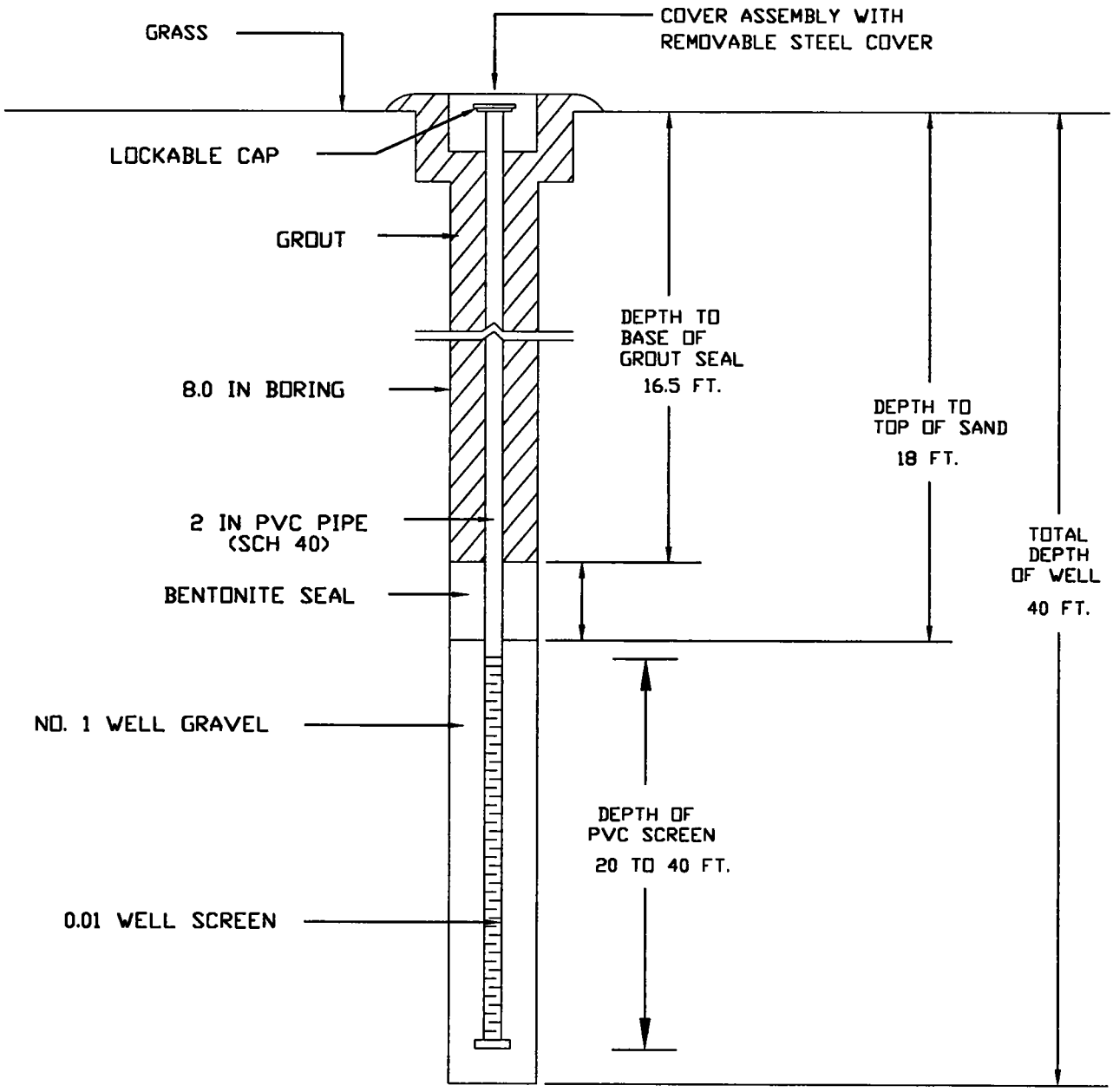


MW-9B

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-9B

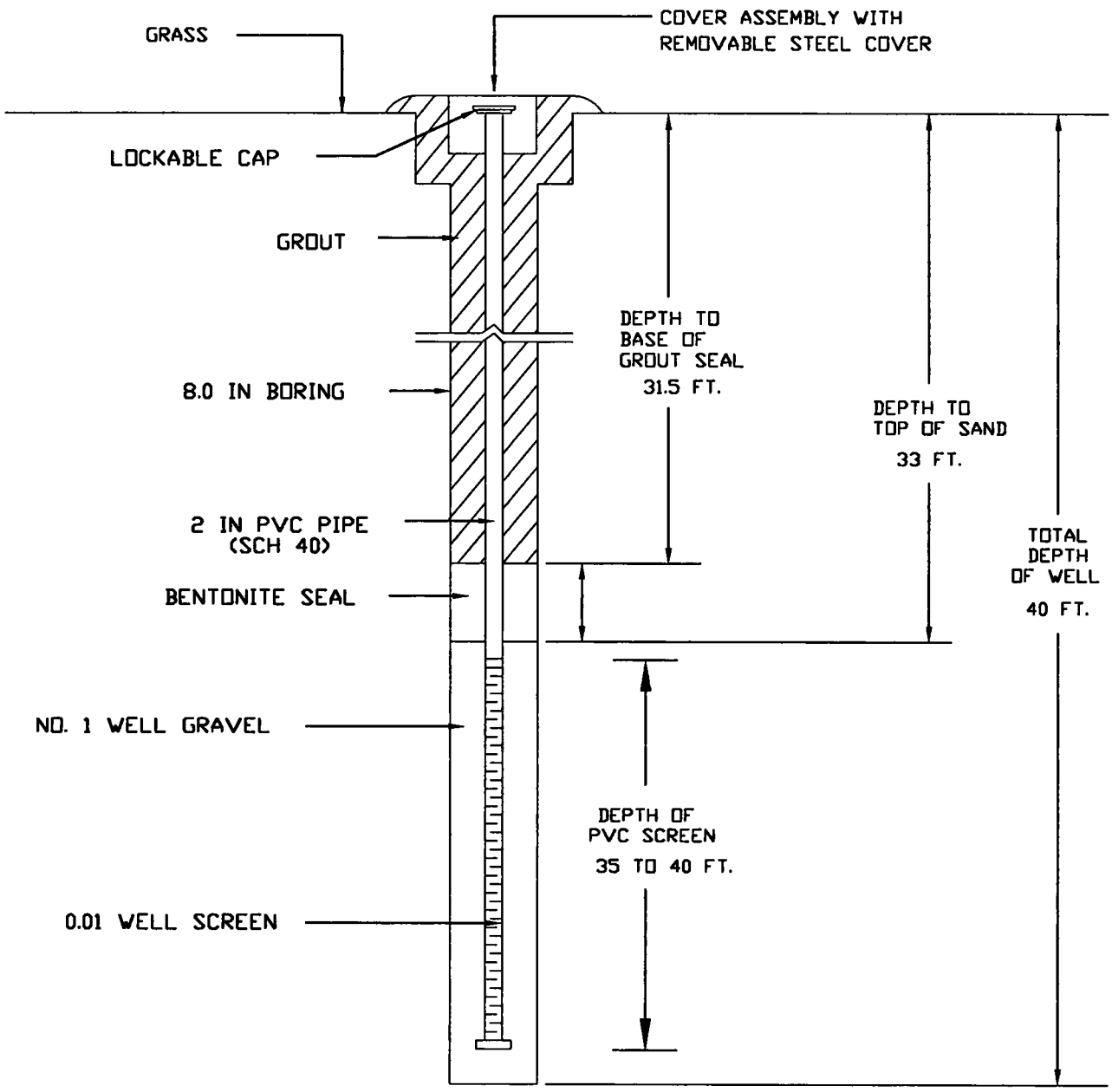


MW-14B

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-14B

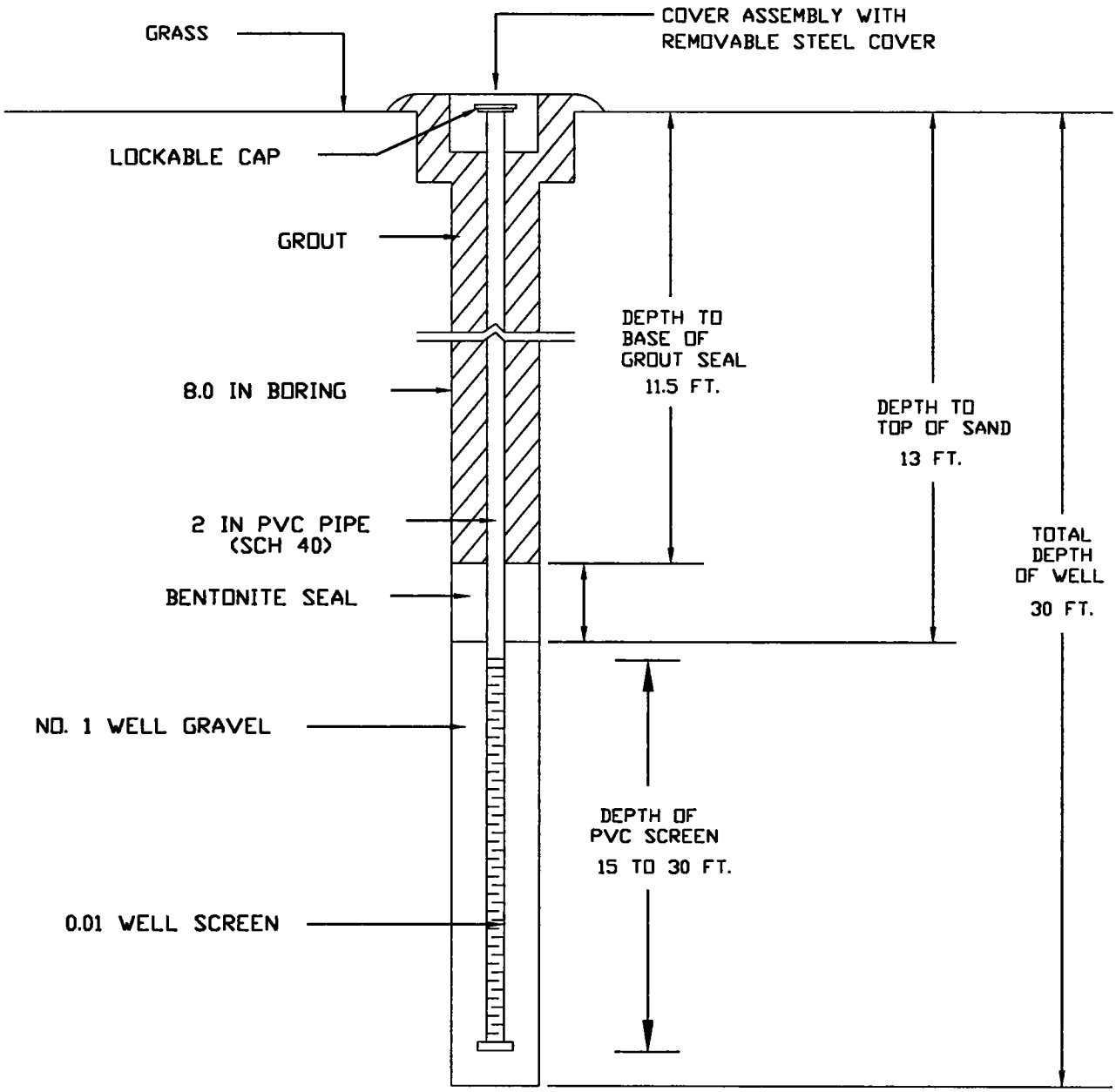


MW-24

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-24

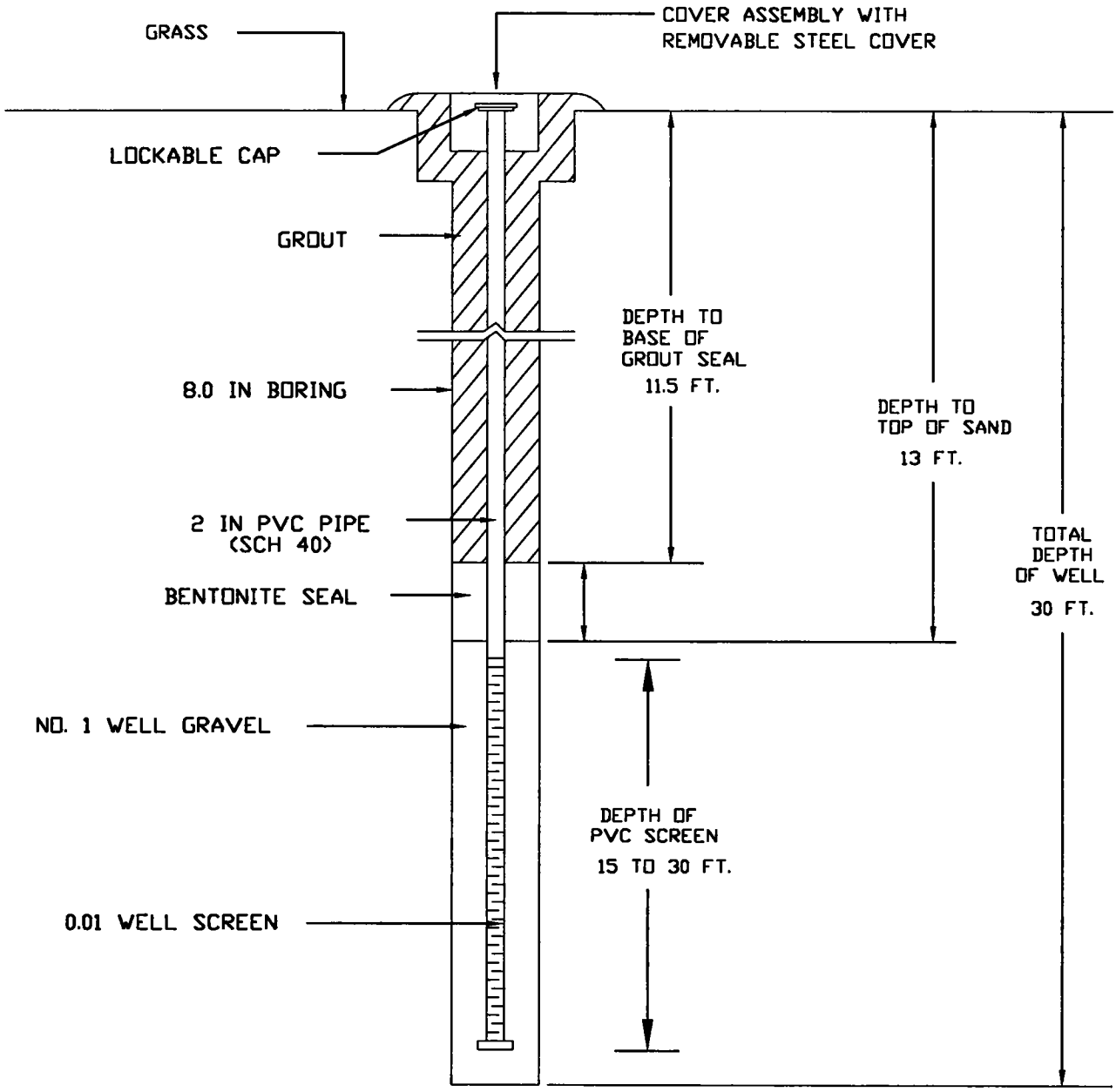


MW-25

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-25



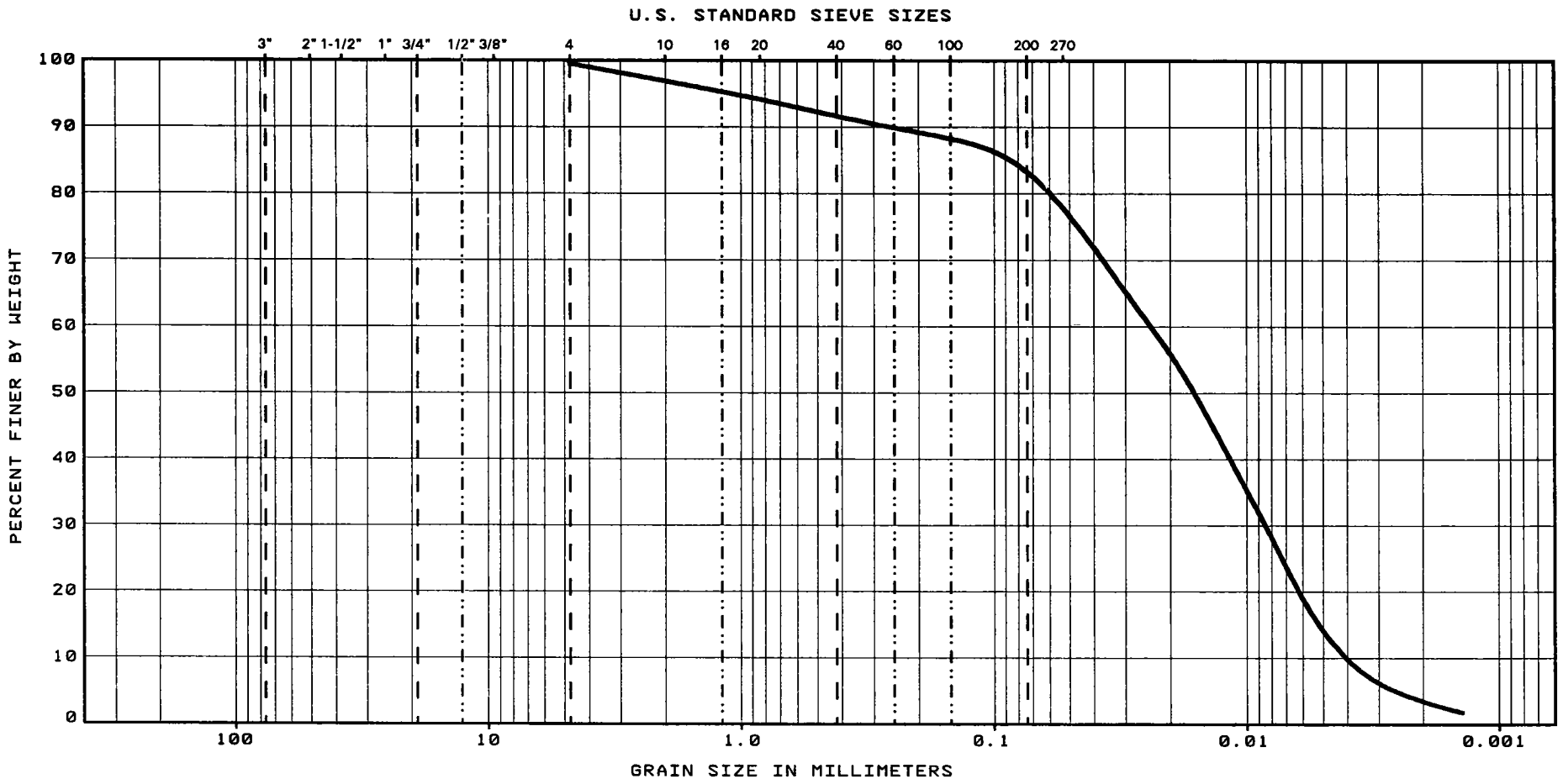
MW-26

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
200 NORTH MINE STREET (SC HWY-28)
McCORMICK, SC

JOB NO. 209.60	MW-26

APPENDIX D
SOIL ANALYTICAL LABORATORY REPORT



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT SIZES	CLAY SIZES

BORING NO.	DEPTH	NAT WC	LL	PL	PI	DESCRIPTION OR CLASSIFICATION
SB-2						Orange Tan Slightly Clayey Medium To Fine Sandy SILT

GRAIN SIZE DISTRIBUTION

GEOSCIENCE GROUP

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6586
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066252

Sample ID: SB-1

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 11:25

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Samoler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Extracted TOC	ND	mg/kg	30.0	30.0	1	10/11/96	8:35	K.Witte	9060M	1158

ND = Not detected at the report limit.

Report Approved By: Theodore J. Duello Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6936
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066253

Sample ID: SB-2

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 14:25

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
TPH (Diesel Range)	361.	mg/kg	10.0	4.00	1	10/ 9/96	9:56	W. Klepper	8015M/3550	730

ND = Not detected at the report limit.

Sample Extraction Data

DRO Extracted 10/ 8/96 Wt extracted: 25.0 gm Extract Volume: 1.0 ml

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
DRO Surrogate,s	86.0	50 - 150

Report Approved By: Theodore J. Duello Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 2

SPECIALIZED ASSAYS ENVIRONMENTAL
960 Foster Creighton Drive
ashville, Tennessee 37204

ANALYTICAL REPORT

* Original report and a copy of the chain of custody will follow by mail.

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A074739

Sample ID: GP-1

Date Collected: 11/ 4/96

Project:

Time Collected: 18:30

Project Name:

Date Received: 11/ 6/96

Sampler: MIKE TYNAN

Time Received: 8:30

State Certification: 84009

Sample Type: Soil

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	0.95	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Acenapthene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Anthracene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Fluoranthene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Fluorene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Pyrene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzo (a) anthracene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzo (a) pyrene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzo (b) fluoranthene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzo (k) fluoranthene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Chrysene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Dibenzo (a,h) anthracene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Indeno (1,2,3-cd) pyrene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Acenapthylene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzo (g,h,i) perylene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Phenanthrene	ND	mg/kg	0.33	0.33	1	11/6/96	20:39	M.Goodrich	8270	7119
Benzene	0.866	mg/kg	0.005	0.001	1	11/6/96	12:52	Holingwrth	8020	7019
Toluene	6.62	mg/kg	0.005	0.001	1	11/6/96	12:52	Holingwrth	8020	7019
Ethylbenzene	4.46	mg/kg	0.005	0.001	1	11/6/96	12:52	Holingwrth	8020	7019
Xylenes, total	19.3	mg/kg	0.005	0.001	1	11/6/96	12:52	Holingwrth	8020	7019
Naphthalene	11.4	mg/kg	0.005	0.005	1	11/6/96	12:52	Holingwrth	8020	7019

ND = Not detected at the report limit.

Sample Extraction Data

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A074739

Sample ID: GP-1

Date Collected: 11 / 4 /96

Project:

Time Collected: 18:30

Project Name:

Date Received: 11 / 6 /96

Sampler: MIKE TYNAN

Time Received: 8:30

State Certification: 84009

Sample Type: Soil

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BTEX/GRO Surrogate	104.	50 - 150
BNA Surrogate, Nitrobenzene	60.0	23 - 120
BNA Surr., 2-Fluorobiphenyl	50.0	30 - 115
BNA Surrogate, Terphenyl d14	80.0	18 - 140

Report Approved By: _____ Report Date: 11 / 8 /96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

APPENDIX E
GROUNDWATER ANALYTICAL REPORT (AUGUST 1994)

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*	
MW-1	06/17/93	100.00	15.81	20.03	4.22	83.09	*
	10/15/93		26.26	>30.0	>3.74	<70.00	*
	04/18/94		20.67	23.83	3.16	78.51	*
	08/16/94		NI	NI	NI	NI	
MW-2	06/17/93	98.76	15.10	15.15	0.05	83.65	*
	10/15/93		-	25.41	-	73.35	
	04/18/94		19.19	23.12	3.93	78.55	*
	08/16/94		NI	NI	NI	NI	
MW-4	06/17/93	101.00	16.55	16.88	0.33	84.36	*
	10/15/93		-	dry	-	<75.30	
	04/18/94		20.77	23.54	2.77	79.51	*
	08/16/94		NI	NI	NI	NI	
MW-5	06/17/93	101.63	18.07	18.29	0.22	83.50	*
	10/15/93		27.51	>32.9	>5.39	<72.72	
	04/18/94		22.45	24.68	2.23	78.60	*
	08/16/94		NI	NI	NI	NI	
MW-6	06/17/93	99.89	-	17.50	-	82.39	
	10/15/93		-	26.85	-	73.04	
	04/18/94		-	21.45	-	78.44	
	08/16/94		NI	NI	NI	NI	
MW-7	06/17/93	100.40	-	17.03	-	83.37	
	10/15/93		-	dry	-	<80.76	
	04/18/94		-	dry	-	<80.76	
	08/16/94		-	dry	-	<80.76	
MW-8	06/17/93	103.31	-	19.10	-	84.21	
	10/15/93		-	dry	-	<82.95	
	04/18/94		-	dry	-	<82.95	
	08/16/94		-	dry	-	<82.95	
MW-9	06/17/93	98.61	-	15.86	-	82.75	
	10/15/93		-	dry	-	<80.29	
	04/18/94		-	dry	-	<80.29	
	08/16/94		-	dry	-	<80.29	

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*
MW-10	06/17/93	92.79	-	14.43	-	78.36
	10/15/93		-	dry	-	<74.54
	04/18/94		-	16.11	-	76.68
	08/16/94		-	16.77	-	76.02
MW-11	06/17/93	85.22	-	9.41	-	75.81
	10/15/93		-	dry	-	<69.82
	04/18/94		-	11.18	-	74.04
	08/16/94		-	11.47	-	73.75
MW-12	06/17/93	94.39	-	16.16	-	78.23
	10/15/93		-	dry	-	<71.23
	04/18/94		-	18.85	-	75.54
	08/16/94		-	19.17	-	75.22
MW-13	06/17/93	97.70	15.03	16.14	1.11	82.38 *
	10/15/93		-	dry	-	<73.02
	04/18/94		-	19.10	-	78.60
	08/16/94		-	19.47	-	78.23
MW-14	06/17/93	100.04	-	9.83	-	90.21
	10/15/93		-	dry	-	<79.73
	04/18/94		-	13.77	-	86.27
	08/16/94		-	18.08	-	81.96
MW-15	06/17/93	99.53	-	17.54	-	81.99
	10/15/93		-	25.57	-	73.96
	04/18/94		-	21.28	-	78.25
	08/16/94		-	22.08	-	77.45
MW-16	06/17/93	100.00	-	18.03	-	81.97
	10/15/93		-	23.20	-	76.80
	04/18/94		-	20.02	-	79.98
	08/16/94		-	21.09	-	78.91
MW-17	06/17/93	96.25	-	15.19	-	81.06
	10/15/93		-	22.84	-	73.41
	04/18/94		-	16.46	-	79.79
	08/16/94		-	17.60	-	78.65
MW-18	06/17/93	95.17	-	14.93	-	80.24
	10/15/93		-	22.75	-	72.42
	04/18/94		-	16.07	-	79.10
	08/16/94		NI	NI	NI	NI

TABLE 1
GROUND- WATER ELEVATION DATA
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Well Number	Date	Elevation Top of Pipe (feet)	Depth to Product (feet)	Depth to GroundWater (feet)	Product Thickness (feet)	Ground-Water Elevation (feet)*
MW-19	06/17/93	94.02	-	13.80	-	80.22
	10/15/93		-	dry	-	<71.71
	04/18/94		-	14.38	-	79.64
	08/16/94		-	15.18	-	78.84
MW-20	06/17/93	98.30	-	21.26	-	77.04
	10/15/93		-	28.00	-	70.30
	09/08/93		-	33.10	-	65.20
	04/18/94		-	23.28	-	75.02
	08/16/94		-	23.53	-	74.77
MW-21	09/08/93	97.08	-	34.28	-	62.80
	10/15/93		-	35.86	-	61.22
	04/18/94		-	24.12	-	72.96
	08/16/94		-	21.74	-	75.34
MW-22	09/08/93	100.30	-	30.96	-	69.34
	10/15/93		-	33.00	-	67.30
	04/18/94		-	29.23	-	71.07
	08/16/94		-	27.48	-	72.82

Notes:
1. Elevations referenced to assumed site datum (MW-1 = 100.0 feet).
2. Depths to ground water measured from top of casing.
3. Ground water depths and fuel thickness were obtained using an oil/water interface probe manufactured by ORS.
4. MW-6 and MW-15 are Type III and Type IV (deep) monitoring wells.
5. * = Adjusted ground water elevation based on a specific gravity for wells with free product, SG of fuel is approximately 0.74.
6. NI= Not Included.

Prepared By B.SHANE 10/11/94 Checked By: S. RANKIN 10/11/94

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-1	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-2	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-4	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-5	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-6	04/01/93	NS	NS	NS	NS	NS	NS
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	7200	400	59	1600	9259	1200
	08/18/94	NS	NS	NS	NS	NS	NS
MW-7	04/01/93	170	38	130	220	558	11
	06/10/93	17	ND	ND	9.6	26.6	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-8	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-9	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	NS	NS	NS	NS	NS	NS
	08/18/94	NS	NS	NS	NS	NS	NS
MW-10	04/01/93	ND	1.7	ND	3.1	4.8	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-11	04/01/93	ND	5.9	5.6	33	44.5	7.9
	06/10/93	ND	ND	ND	3.4	3.4	ND
	04/19/94	ND	ND	1.1	5.8	6.9	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-12	04/01/93	ND	ND	ND	ND	ND	ND
	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-13	04/01/93	20000	35000	3000	15000	73000	2300
	06/10/93	NS	NS	NS	NS	NS	NS
	04/19/94	23000	46000	3800	19000	91800	1000
	08/18/94	17000	38000	4400	24000	83400	ND
MW-14	04/01/93	620	3600	500	2900	7620	ND
	06/10/93	43	35	25	270	373	ND
	04/19/94	ND	1.2	1.3	29	31.5	ND
	08/18/94	3.9	7.3	1.6	60	72.8	ND
MW-15	12/10/92 (85ft)	3400	22	ND	400	3822	350
	12/10/92 (100ft)	4300	ND	ND	150	4450	570
	12/15/92 (130ft)	3100	5.2	15	200	3320.2	430
	04/01/93	1	ND	2.4	ND	3.4	220
	06/10/93	26	ND	ND	ND	26	59
	04/19/94	5.2	ND	ND	ND	5.2	16
	08/18/94	1.5	25	7.3	40	73.8	11
MW-16	06/10/93	ND	ND	ND	ND	ND	14
	04/19/94	ND	ND	ND	ND	ND	5.7
	08/18/94	ND	1.3	ND	ND	1.3	ND
MW-17	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-18	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	NS	NS	NS	NS	NS	NS
MW-19	06/10/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-20	06/10/93	16000	31000	3100	15000	65100	2800
	04/19/94	12000	25000	3000	17000	57000	1900
	08/18/94	14000	27000	3000	15000	59000	1900

TABLE 2
GROUND-WATER ANALYTICAL RESULTS
FORMER CROWN STATION NO. SC 576
MCCORMICK, SOUTH CAROLINA
LAW ENGINEERING PROJECT NUMBER 499-2-4051-03

Boring Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	Total BTEX (ug/l)	MTBE (ug/l)
MW-21	09/08/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
MW-22	08/17/93	ND	ND	ND	ND	ND	ND
	04/19/94	ND	ND	ND	ND	ND	ND
	08/18/94	ND	ND	ND	ND	ND	ND
Trip Blank	08/15/94	ND	ND	ND	ND	ND	ND
SC Action Level		5	1000	700	10000	-	-

Notes:
1. ND = Not Detected
2. NS = Not Sampled
3. ug/l = micrograms per liter
4. MW-6 and 15 are Type III and Type IV (deep) monitoring wells, respectively.
5. BTEX = Benzene, Toluene, Ethyl-benzene, and Xylenes
6. MTBE = Methy-Tertiary- Butyl Ether

Prepared By: B. SHANE 10/11/94 | Checked By: S. RANKIN 10/11/94

APPENDIX F
GROUNDWATER ANALYTICAL REPORT (AUGUST 1996)

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6886
ATTN. JAMES WELLONS
6123 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-0010204

Sample ID: MW-3

Date Collected: 8/13/96

Project: 209.60

Time Collected: 18:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Acenaphthene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Acenapthylene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	8:01	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	19:39	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	19:39	E.SMITH	602	204
Lead	0.006	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050211

Sample ID: MW-22

Date Collected: 8/13/96

Project: 809.60

Time Collected: 17:35

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 327

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	77.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	94.0	43 - 116
BNA Surrogate, Terphenyl d14	82.0	20 - 130
Halogenated VOA Surrogate 1	91.	70 - 130
Halogenated VOA Surrogate 2	107.	70 - 130
Halogenated VOA Surrogate 3	121.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050211

Sample ID: MW-22

Date Collected: 8/13/96

Project: 209.60

Time Collected: 17:35

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 327

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Acenaothene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Acenapthylene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	13:24	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
Toluene	1.0	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/19/96	0:27	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/19/96	0:27	E.SMITH	602	204
Lead	0.032	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6-96
ATTN: JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050210

Sample ID: MW-21

Date Collected: 8/12/96

Project: 209.60

Time Collected: 17:40

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	73.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	90.0	43 - 116
BNA Surrogate, Terphenyl d14	80.0	20 - 130
Halogenated VOA Surrogate 1	102.	70 - 130
Halogenated VOA Surrogate 2	115.	70 - 130
Halogenated VOA Surrogate 3	122.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6125 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050210

Sample ID: MW-21

Date Collected: 8/12/96

Project: 209.60

Time Collected: 17:40

Project Name: MCCORMICK

Date Received: 8/15 96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Acenaphthene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Acenaphthylene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	11:36	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	23:46	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	23:46	E.SMITH	602	204
Lead	0.121	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING & [illegible]
ATT'N. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050209

Sample ID: MW-19

Date Collected: 8/13/96

Project: 209.60

Time Collected: 18:50

Project Name: MCCORMICK

Date Received: 8/15.96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	72.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	87.0	43 - 116
BNA Surrogate, Terphenyl d14	70.0	20 - 130
Halogenated VOA Surrogate 1	98.	70 - 130
Halogenated VOA Surrogate 2	110.	70 - 130
Halogenated VOA Surrogate 3	128.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6786
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 9608209

Sample ID: MW-1R

Date Collected: 8/13/96

Project: 209.60

Time Collected: 18:50

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Acenapthene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Antaracene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Acenapthylene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	11:01	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	23:05	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	23:05	E.SMITH	602	204
Lead	0.013	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050203

Sample ID: MW-18

Date Collected: 8/13/96

Project: 209.60

Time Collected: 15:00

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	76.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	93.0	43 - 116
BNA Surrogate, Terphenyl d14	77.0	20 - 130
Halogenated VOA Surrogate 1	98.	70 - 130
Halogenated VOA Surrogate 2	110.	70 - 130
Halogenated VOA Surrogate 3	123.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6796
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050203

Sample ID: MW-18

Date Collected: 8/13/96

Project: 209.60

Time Collected: 12:00

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 237

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Acenapthene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Acenapthylene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	10:25	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	22:24	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	22:24	E.SMITH	602	204
Lead	0.006	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING &PBG
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050207

Sample ID: MW-17

Date Collected: 8/13/96

Project: 209.60

Time Collected: 19:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

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** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	77.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	97.0	43 - 116
BNA Surrogate, Terphenyl d14	85.0	20 - 130
Halogenated VOA Surrogate 1	92.	70 - 130
Halogenated VOA Surrogate 2	113.	70 - 130
Halogenated VOA Surrogate 3	118.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6936
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050207

Sample ID: MW-17

Date Collected: 8/17/96

Project: 209.60

Time Collected: 19:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Acenapthene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Acenapthylene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	9:49	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	21:43	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	21:43	E.SMITH	602	204
Lead	0.004	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING &-86
ATT:. JAMES WELLONS
6128 BROOMSHIRE BL'D. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A05026b

Sample ID: MW-12

Date Collected: 8/ 3/96

Project: 209.60

Time Collected: 18:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES JELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA s Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

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** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	71.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	89.0	43 - 116
BNA Surrogate, Terphenyl d14	77.0	20 - 130
Halogenated VOA Surrogate 1	98.	70 - 130
Halogenated VOA Surrogate 2	111.	70 - 130
Halogenated VOA Surrogate 3	130.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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SPECIALIZED ASSAYS, INC.

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Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING &
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A05420b

Sample ID: MW-12

Date Collected: 8/13/96

Project: 209.60

Time Collected: 18:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Acenaphthene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Acenaphthylene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	9:13	M.Goodrich	625	137
Benzene	2.2	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	21:02	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	21:02	E.SMITH	602	204
Lead	0.013	mg/l	0.003	0.003	1	8/19/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING &PSG
ATT.. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050203

Sample ID: MW-11

Date Collected: 8/13/96

Project: 209.60

Time Collected: 15:25

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

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** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	79.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	69.0	43 - 116
BNA Surrogate, Terphenyl d14	88.0	20 - 130
Halogenated VOA Surrogate 1	100.	70 - 130
Halogenated VOA Surrogate 2	117.	70 - 130
Halogenated VOA Surrogate 3	130.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

NEADE ENGINEERING 6986
ATT'N. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050205

Sample ID: MW-11

Date Collected: 8/13/96

Project: 209.60

Time Collected: 13:25

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 387

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Naphthalene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Acenaphthene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Fluorene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzo(a)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzo(a)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzo(b)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzo(k)fluoranthene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Chrysene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Dibenzo(a,h)anthracene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Indeno(1,2,3-cd)pyrene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Acenaphthylene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzo(g,h,i)perylene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Phenanthrene	ND	ug/l	5.0	5.0	1	8/18/96	8:37	M.Goodrich	625	137
Benzene	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
Ethylbenzene	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
Naphthalene	ND	ug/l	10.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
Toluene	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
m,p-Xylenes	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
o-Xylene	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
Ethylene Dibromide	ND	ug/l	1.0	1.0	1	8/18/96	20:21	E.SMITH	601	204
MTBE	ND	ug/l	10.0	1.0	1	8/18/96	20:21	E.SMITH	602	204
Lead	0.002	mg/l	0.003	0.003	1	8/17/96	8:33	S.Sturm	6010A	9635

ND = Not detected at the report limit.

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6436
ATTN: JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A050204

Sample ID: MW-3

Date Collected: 8/13/96

Project: 209.60

Time Collected: 13:30

Project Name: MCCORMICK

Date Received: 8/15/96

Sampler: JAMES WELLONS

Time Received: 6:30

State Certification: 387

Sample Type: Water

Site I.D.:

Sample Extraction Data

BNA's Extracted 8/16/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	64.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	81.0	43 - 116
BNA Surrogate, Terphenyl d14	81.0	20 - 130
Halogenated VOA Surrogate 1	111.	70 - 130
Halogenated VOA Surrogate 2	111.	70 - 130
Halogenated VOA Surrogate 3.	120.	70 - 130

Report Approved By: Michael H. Dunn Report Date: 8/20/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 3

APPENDIX G
GROUNDWATER ANALYTICAL REPORT (OCTOBER 1996)

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066251

Sample ID: MW-20

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:05

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6936
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066251

Sample ID: MW-20

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:05

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 990. ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	80.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	80.0	43 - 116
BNA Surrogate, Terphenyl d14	85.0	20 - 130
Halogenated VOA Surrogate 1	107.	70 - 130
Halogenated VOA Surrogate 2	102.	70 - 130
Halogenated VOA Surrogate 3	85.	70 - 130

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066251

Sample ID: MW-20

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:05

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	10800	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
Ethylbenzene	1900.	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
Naphthalene	ND	ug/l	2000.	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
Toluene	17800	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
m,p-Xylenes	6540.	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
o-Xylene	2700.	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	200.0	1.000	200	10/ 9/96	11:16	E.SMITH	601	185
MTBE	1800.	ug/l	2000.	1.000	200	10/ 9/96	11:16	E.SMITH	602	185
Lead	302.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.660	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Acenapthene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Anthracene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Fluoranthene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Fluorene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Pyrene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Benzo(a)anthracene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Benzo(a)pyrene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Chrysene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Acenapthylene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728
Phenanthrene	ND	ug/l	0.005	0.005	1	10/10/96	19:29	M.Goodrich	625	728

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6886
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066250

Sample ID: MW-26

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:40

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066250

Sample ID: MW-26

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:40

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	85.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	90.0	43 - 116
BNA Surrogate, Terphenyl d14	100.	20 - 130
Halogenated VOA Surrogate 1	103.	70 - 130
Halogenated VOA Surrogate 2	101.	70 - 130
Halogenated VOA Surrogate 3	85.	70 - 130

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066250

Sample ID: MW-26

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:40

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	9200.	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
Ethylbenzene	2100.	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
Naphthalene	ND	ug/l	1000.	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
Toluene	18370	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
m,p-Xylenes	6800.	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
o-Xylene	3000.	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	100.0	1.000	100	10/ 9/96	10:41	E.SMITH	601	185
MTBE	ND	ug/l	1000.	1.000	100	10/ 9/96	10:41	E.SMITH	602	185
Lead	10.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.655	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Anthracene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Fluorene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Pyrene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Chrysene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Acenapthylene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.005	0.005	1	10/10/96	18:53	M.Goodrich	625	728

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066249

Sample ID: MW-25

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 15:35

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066249

Sample ID: MW-25

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 15:35

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	64.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	67.0	43 - 116
BNA Surrogate, Terphenyl d14	62.0	20 - 130
Halogenated VOA Surrogate 1	104.	70 - 130
Halogenated VOA Surrogate 2	100.	70 - 130
Halogenated VOA Surrogate 3	94.	70 - 130

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066249

Sample ID: MW-25

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 15:35

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	2510.	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
Ethylbenzene	2160.	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
Naphthalene	480.0	ug/l	100.0	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
Toluene	85.0	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
m,p-Xylenes	2680.	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
o-Xylene	1910.	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	10.00	1.000	10	10/ 9/96	10:07	E.SMITH	601	185
MTBE	447.0	ug/l	100.0	1.000	10	10/ 9/96	10:07	E.SMITH	602	185
Lead	20.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.420	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Anthracene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Fluorene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Pyrene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Chrysene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Acenaothylene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.025	0.005	5	10/10/96	3:35	M.Goodrich	625	728

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2960 Foster Creighton Dr.
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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066248

Sample ID: MW-24

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:22

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Samole Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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SPECIALIZED ASSAYS, INC.

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6123 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066248

Sample ID: MW-24

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:22

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	64.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	66.0	43 - 116
BNA Surrogate, Terphenyl d14	82.0	20 - 130
Halogenated VOA Surrogate 1	104.	70 - 130
Halogenated VOA Surrogate 2	102.	70 - 130
Halogenated VOA Surrogate 3	90.	70 - 130

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6586
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066248

Sample ID: MW-24

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 16:22

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	ND	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
Ethylbenzene	155.0	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
Naphthalene	ND	ug/l	50.00	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
Toluene	135.0	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
m,p-Xylenes	515.0	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
o-Xylene	200.0	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	5.000	1.000	5	10/ 9/96	9:32	E.SMITH	601	185
MTBE	ND	ug/l	50.00	1.000	5	10/ 9/96	9:32	E.SMITH	602	185
Lead	4.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.048	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Fluorene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Chrysene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Acenapthylene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.005	0.005	1	10/10/96	2:54	M.Goodrich	625	728

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066247

Sample ID: MW-14B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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SPECIALIZED ASSAYS, INC.

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Nashville, TN 37204-0566
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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066247

Sample ID: MW-14B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	80.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	80.0	43 - 116
BNA Surrogate, Terphenyl d14	85.0	20 - 130
Halogenated VOA Surrogate 1	113.	70 - 130
Halogenated VOA Surrogate 2	110.	70 - 130
Halogenated VOA Surrogate 3	68.	70 - 130

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066247

Sample ID: MW-14B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 17:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	7800.	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
Ethylbenzene	2300.	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
Naphthalene	ND	ug/l	1000.	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
Toluene	18100	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
m,p-Xylenes	7300.	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
o-Xylene	3300.	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	100.0	1.000	100	10/ 9/96	8:57	E.SMITH	601	185
MTBE	ND	ug/l	1000.	1.000	100	10/ 9/96	8:57	E.SMITH	602	185
Lead	199.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.695	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Fluorene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Chrysene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Acenapthylene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.005	0.005	1	10/10/96	2:18	M.Goodrich	625	728

COPY 2

SPECIALIZED ASSAYS, INC.

2960 Foster Creighton Dr.
P.O. Box 40566
Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066246

Sample ID: MW-9B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 15:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

COPY 2

SPECIALIZED ASSAYS, INC.

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6123 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066246

Sample ID: MW-9B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 13:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	72.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	69.0	43 - 116
BNA Surrogate, Terphenyl d14	82.0	20 - 130
Halogenated VOA Surrogate 1	107.	70 - 130
Halogenated VOA Surrogate 2	105.	70 - 130
Halogenated VOA Surrogate 3	86.	70 - 130

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A0662+6

Sample ID: MW-9B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 15:55

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	45.0	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
Ethylbenzene	46.0	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
Naphthalene	ND	ug/l	10.00	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
Toluene	285.0	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
m,p-Xylenes	157.0	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
o-Xylene	55.0	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	1.000	1.000	1	10/ 9/96	8:23	E.SMITH	601	185
MTBE	ND	ug/l	10.00	1.000	1	10/ 9/96	8:23	E.SMITH	602	185
Lead	24.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Fluorene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Chrysene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Acenapthylene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.005	0.005	1	10/10/96	1:42	M.Goodrich	625	728

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Nashville, TN 37204-0566
Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066245

Sample ID: MW-7B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 18:10

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range

Report Approved By: Theodore J. Duello

Report Date: 10/11/96

Theodore J. Duello, Ph.D.
Michael H. Dunn, M.S.
Danny B. Hale, M.S.

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ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A066245

Sample ID: MW-7B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 18:10

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

TCLP Results

Analyte	Result	Units	Reg Limit	Matrix Spike Recovery (%)	Date	Method

ND = Not detected at the report limit.

Sample Extraction Data

BNA's Extracted 10/ 7/96 Vol extracted: 1000 ml Extract Volume: 1.0 ml

---

** QUALITY CONTROL DATA **

Surrogate Recoveries

Surrogate	% Recovery	Target Range
BNA Surrogate, Nitrobenzene	70.0	35 - 115
BNA Surrogate, 2-Fluorobiphenyl	66.0	43 - 116
BNA Surrogate, Terphenyl d14	72.0	20 - 130
Halogenated VOA Surrogate 1	110.	70 - 130
Halogenated VOA Surrogate 2	101.	70 - 130
Halogenated VOA Surrogate 3	92.	70 - 130

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Phone 1-615-726-0177

ANALYTICAL REPORT

MEADE ENGINEERING 6986
ATTN. JAMES WELLONS
6128 BROOKSHIRE BLVD. STE. F
CHARLOTTE, NC 28216

Lab Number: 96-A056245

Sample ID: MW-7B

Date Collected: 10/ 3/96

Project: 209.60

Time Collected: 18:10

Project Name: MCCORMICK, S.C.

Date Received: 10/ 5/96

Sampler: JAMES WELLONS

Time Received: 8:30

State Certification: 84009

Sample Type: Water

Site I.D.:

Analyte	Result	Units	Report Limit	Quan Limit	Dil Factor	Date	Time	Analyst	Method	Batch
Benzene	35.0	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
Ethylbenzene	43.0	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
Naphthalene	18.0	ug/l	10.00	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
Toluene	94.0	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
m,p-Xylenes	126.0	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
o-Xylene	48.0	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
Ethylene Dibromide	ND	ug/l	1.000	1.000	1	10/ 9/96	7:48	E.SMITH	601	185
MTBE	ND	ug/l	10.00	1.000	1	10/ 9/96	7:48	E.SMITH	602	185
Lead	134.	ug/l	3.00	3.00	1	10/ 9/96	16:49	S.Sturm	200.7	272
Naphthalene	0.016	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Acenapthene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Fluorene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Benzo(a)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Benzo(a)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Benzo(b)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Benzo(k)fluoranthene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Chrysene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Dibenzo(a,h)anthracene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Indeno(1,2,3-cd)pyrene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Acenapthylene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Benzo(g,h,i)perylene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728
Phenanthrene	ND	mg/l	0.005	0.005	1	10/10/96	1:06	M.Goodrich	625	728

COPY 2

APPENDIX H
AQUIFER TEST DATA

Data set..... A:\MW7B.D
Data set title..... MW-7B SLUG TEST McCORMICK, SC

Knowns and Constants:
No. of data points..... 21
Radius of well casing..... 0.08333
Radius of well..... 0.3333
Aquifer saturated thickness..... 50
Well screen length..... 15
Static height of water in well..... 23.82
Log(Re/Rw)..... 2.716
A, B, C..... 2.918, 0.471, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	1.0050E-004	+/-	2.6258E-006
y0 =	3.1272E+000	+/-	3.7583E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals..... 21
Number of estimated parameters.... 2
Degrees of freedom..... 19
Residual mean..... 0.006604
Residual standard deviation..... 0.06846
Residual variance..... 0.004687

Model Residuals:

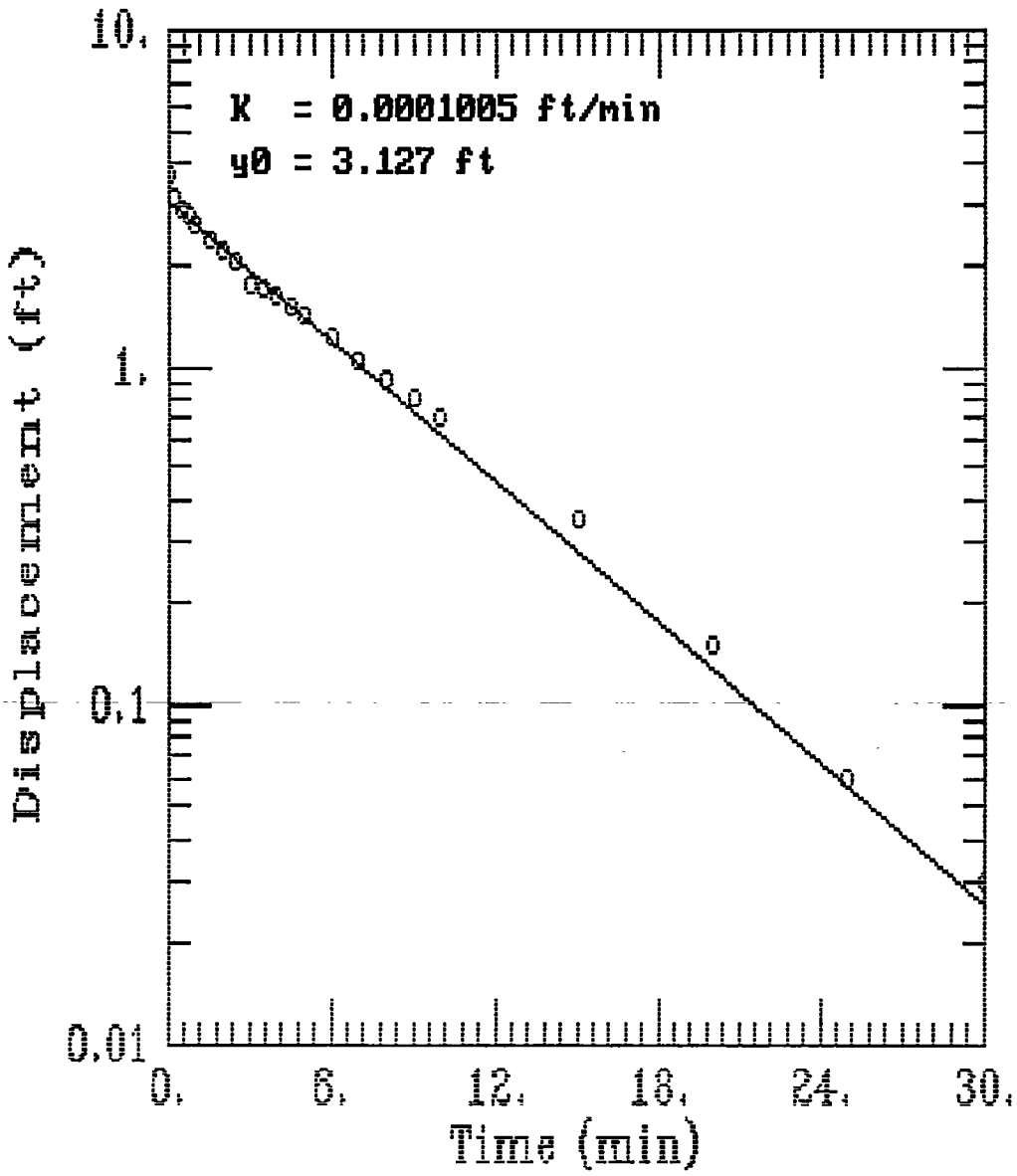
Time	Observed	Calculated	Residual	Weight
0.25	3.15	3.0047	0.14534	1
0.5	2.94	2.8869	0.05305	1
0.75	2.78	2.7738	0.0061514	1
1	2.68	2.6652	0.014822	1
1.5	2.39	2.4604	-0.070443	1
2	2.23	2.2714	-0.041435	1
2.5	2.03	2.0969	-0.066947	1
3	1.76	1.9359	-0.17586	1
3.5	1.73	1.7872	-0.057152	1
4	1.63	1.6499	-0.019865	1
4.5	1.52	1.5231	-0.0031249	1
5	1.42	1.4061	0.013879	1
6	1.22	1.1984	0.021614	1
7	1.05	1.0213	0.028659	1
8	0.93	0.87045	0.059548	1
9	0.81	0.74185	0.068145	1
10	0.7	0.63226	0.067744	1
15	0.35	0.28429	0.065709	1
20	0.15	0.12783	0.02217	1
25	0.06	0.057478	0.0025217	1
30	0.03	0.025845	0.0041551	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	1.0050E-004
y0 =	3.1272E+000

MW-7B SLUG TEST McCORMICK, SC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TEST DESCRIPTION

Data set..... A:\MW14B.D
Data set title..... MW-14B SLUG TEST McCORMICK, SC

Knowns and Constants:
No. of data points..... 13
Radius of well casing..... 0.08333
Radius of well..... 0.3333
Aquifer saturated thickness..... 50
Well screen length..... 20
Static height of water in well..... 22.93
Log(Re/Rw)..... 2.811
A, B, C..... 3.377, 0.539, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.2346E-005	+/-	6.9381E-006
y0 =	1.1209E+000	+/-	5.6836E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals..... 13
Number of estimated parameters.... 2
Degrees of freedom..... 11
Residual mean..... 0.002816
Residual standard deviation..... 0.1238
Residual variance..... 0.01532

Model Residuals:

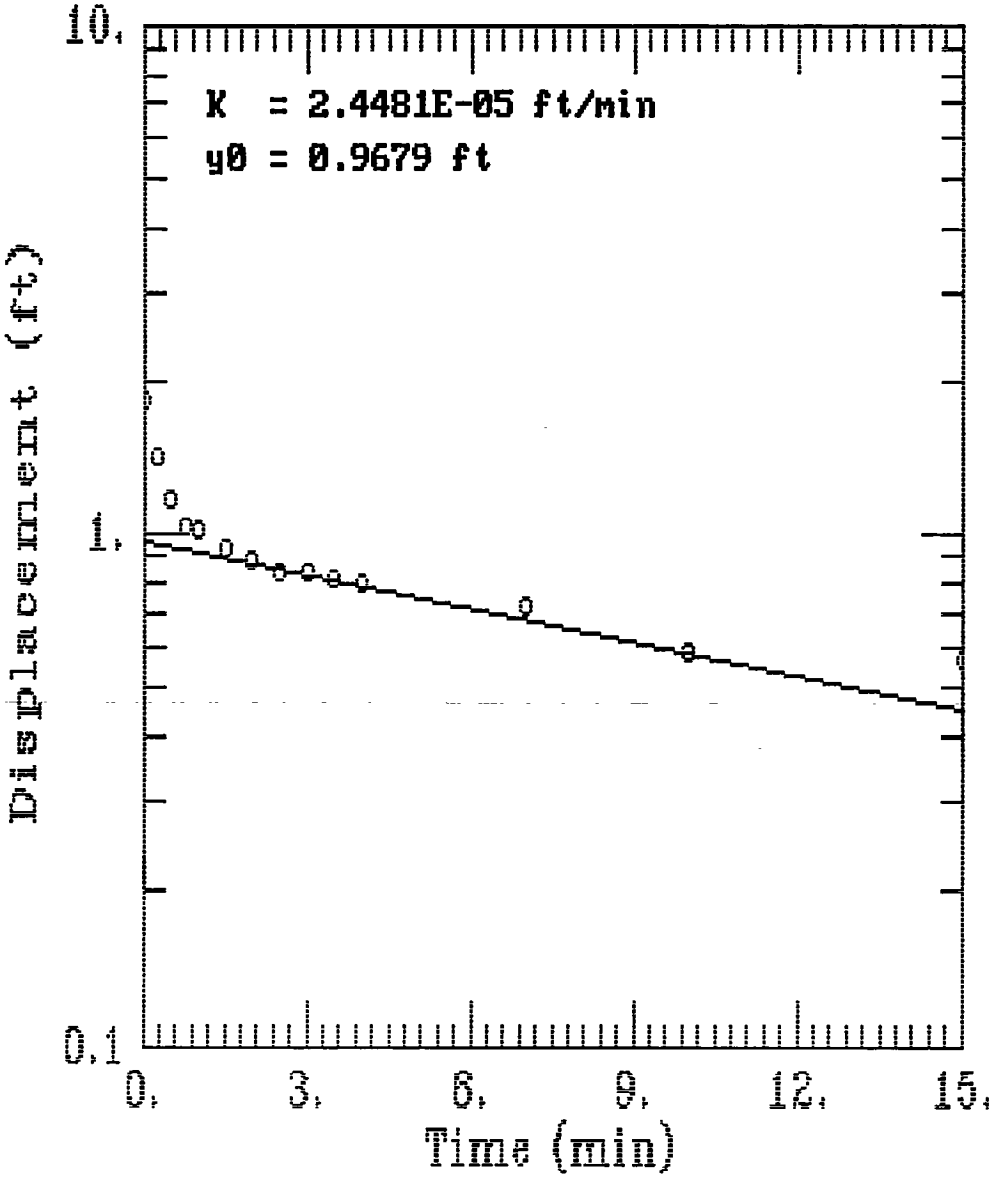
Time	Observed	Calculated	Residual	Weight
0.25	1.41	1.1025	0.3075	1
0.5	1.17	1.0844	0.085623	1
0.75	1.04	1.0666	-0.026555	1
1	1.02	1.049	-0.029025	1
1.5	0.94	1.0148	-0.074827	1
2	0.89	0.98174	-0.091743	1
2.5	0.84	0.94974	-0.10974	1
3	0.84	0.91878	-0.078775	1
3.5	0.82	0.88882	-0.068823	1
4	0.8	0.85985	-0.059847	1
7	0.72	0.70478	0.015216	1
10	0.59	0.57768	0.012315	1
15	0.57	0.41471	0.15529	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.2346E-005
y0 =	1.1209E+000

MW-14B SLUG TEST McCORMICK, SC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TEST DESCRIPTION

Data set..... A:\MW25D
Data set title..... MW-25 SLUG TEST McCORMICK, SC

Knowns and Constants:
- No. of data points..... 21
- Radius of well casing..... 0.08333
- Radius of well..... 0.3333
- Aquifer saturated thickness..... 50
- Well screen length..... 15
- Static height of water in well..... 23.22
- Log(Re/Rw)..... 2.703
- A, B, C..... 2.918, 0.471, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.8698E-005	+/-	1.5379E-006
y0 =	4.5278E+000	+/-	5.6787E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals..... 21
- Number of estimated parameters.... 2
- Degrees of freedom..... 19
- Residual mean..... 0.01242
- Residual standard deviation..... 0.1394
- Residual variance..... 0.01945

Model Residuals:

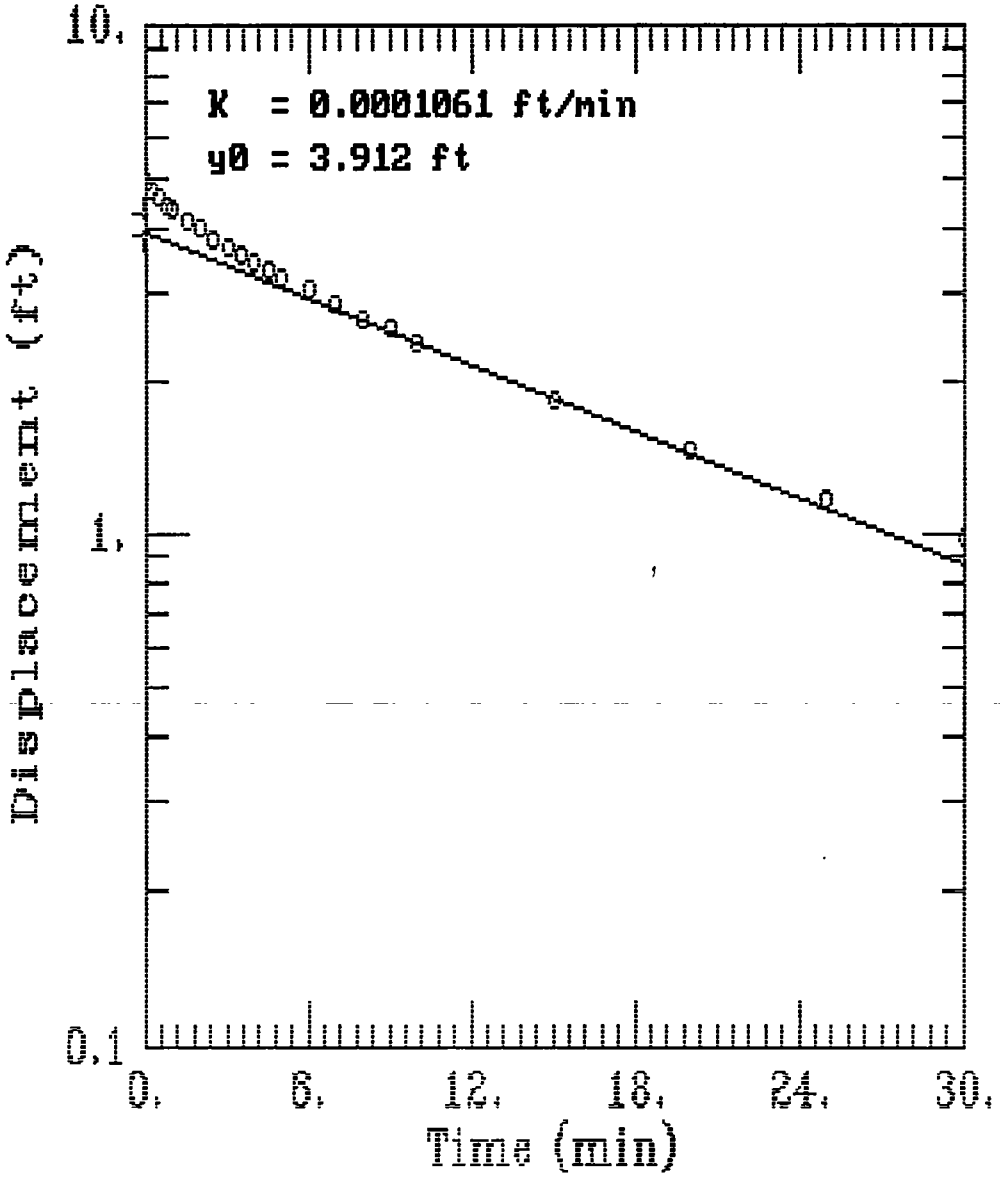
Time	Observed	Calculated	Residual	Weight
0.25	4.73	4.4583	0.27169	1
0.5	4.6	4.3899	0.2101	1
0.75	4.4	4.3225	0.077465	1
1	4.33	4.2562	0.073794	1
1.5	4.12	4.1266	-0.0065875	1
2	3.96	4.0009	-0.040916	1
2.5	3.81	3.8791	-0.069072	1
3	3.68	3.7609	-0.080938	1
3.5	3.55	3.6464	-0.096402	1
4	3.42	3.5354	-0.11535	1
4.5	3.32	3.4277	-0.10769	1
5	3.21	3.3233	-0.1133	1
6	3.02	3.124	-0.10397	1
7	2.83	2.9366	-0.10659	1
8	2.66	2.7605	-0.10045	1
9	2.53	2.5949	-0.064877	1
10	2.39	2.4392	-0.049235	1
15	1.85	1.7903	0.059652	1
20	1.46	1.3141	0.14592	1
25	1.17	0.96451	0.20549	1
30	0.98	0.70793	0.27207	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.8698E-005
y0 =	4.5278E+000

MW-25 SLUG TEST, McCORMICK, SC



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Modeling Group

EQUATIONS USED FOR ESTIMATING GROUNDWATER VELOCITY AND TRANSMISSIVITY

To estimate the average groundwater velocity, the following modified Darcian flow equation was used:

EQUATION: $V_h = \frac{(K_h)*(l)}{n}$

WHERE:

V_h = Average Horizontal Velocity (ft/day)
K_h = Average Horizontal Hydraulic Conductivity (ft/day)
l = Hydraulic Gradient (ft/ft)
n = Porosity (%)

THEREFORE: $V_h = \frac{0.11 \times 0.02}{0.15}$

V_h = 0.014667 ft/day
5.353333 ft/yr

The transmissivity of the surficial aquifer was estimated using the following equation:

EQUATION: $T = K_h * b$

WHERE:

T = Transmissivity (ft^2/day)
K_h = Horizontal Hydraulic Conductivity (ft/day)
b = Saturated Thickness of Aquifer (ft)

THEREFORE: $T = 0.11 \times 50$

T = 5.5 ft^2/day

APPENDIX I
FREE-PRODUCT RECOVERY TESTS

FREE-PRODUCT RECOVERY TEST RESULTS (MW-1)

depth to product (ft)	depth to water (ft)	initial product thickness (ft)
21.77	24.13	2.36

time (min)			change in product thickness (ft)
0	24.39	24.82	0.43
2	23.97	24.47	0.5
3	23.82	24.34	0.52
4	23.72	24.23	0.51
5	23.65	24.15	0.5
10	23.42	23.8	0.38
15	23.3	23.59	0.29
25	23.13	23.39	0.26
35	22.94	23.28	0.34
45	22.78	23.2	0.42
55	22.66	23.09	0.43
70	22.55	23	0.45
171	22.3	22.92	0.62
1070	22.18	23.13	0.95

~18 hrs.

$$\frac{0.95}{2.36} = 40.25424\ \%$$ recovery over a period of 1070 minutes.

FREE-PRODUCT RECOVERY TEST RESULTS (RW-1)

	depth to product (ft)	depth to water (ft)	initial product thickness (ft)
	22.45	23.12	0.67

time (min)			change in product thickness (ft)
0	22.91	23.28	0.37
3	22.75	23.18	0.43
4	22.7	23.1	0.4
5	22.67	23	0.33
6	22.64	23.06	0.42
7	22.62	23.05	0.43
8	22.6	23.02	0.42
13	22.56	23	0.44
18	22.54	22.95	0.41
23	22.52	22.97	0.45
28	22.52	22.97	0.45
33	22.52	22.94	0.42
38	22.5	22.94	0.44
48	22.51	22.97	0.46
58	22.5	22.95	0.45
101	22.52	22.95	0.43
138	22.49	22.95	0.46

~ 2.3 hrs

$$\frac{0.46}{0.67} = 68.65672\ \%$$ recovery over a period of 138 minutes.

FREE-PRODUCT RECOVERY TEST RESULTS (MW-4)

depth to product (ft)	depth to water (ft)	initial product thickness (ft)
23.1	24.67	1.57

time (min)			change in product thickness (ft)
0	23.7	24.2	0.5
5	23.52	23.89	0.37
10	23.48	23.87	0.39
15	23.45	23.87	0.42
20	23.45	23.91	0.46
108	23.35	24	0.65
1010	23.42	24.24	0.82

$\frac{0.82}{1.57}$ = 52.2293 % recovery over a period of 1010 minutes. ≈ 16.8 hrs

APPENDIX J
SOIL LEACHIBILITY MODEL

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: #	06443	COUNTY McCormick
FACILITY NAME	Former Crown Service Station SC-576	
STREET ADDRESS	200 North Mine Street (SC Highway 28)	

Soil Risk Evaluation Data

				Figure
TPH		361 mg/kg		
Soil % SAND		17 %		
Soil % CLAY		5 %		
Worst Case	Benzene	0.866 mg/kg	C_S	
Soil Analyses	Toluene	6.62 mg/kg	C_S	
	Ethylbenzene	4.46 mg/kg	C_S	
	Xylenes	19.3 mg/kg	C_S	
	Naphthalene	11.4 mg/kg	C_S	
Natural Organic Carbon Content		30 mg/kg	f_{oc}	
Average Annual Recharge		25 cm	H_W	
Distance from highest Soil Contamination to water table		67 cm	L	
Bulk Density of Soil		1.05 g/cc 1.15	Bd	1
Wetting Front Section		– 30 cm	H_f	2
Soil Hydraulic Conductivity		0.00014 cm/sec	K_f	3
Porosity		0.45 % 45	Φ	4
Residual Water Content		0.04 %	W_r	5

List possible human exposure pathways from surface soil.

Dermal Contact and Absorption
Ingestion of Surface Soils
Inhalation of Volatiles

IN-SITU SOIL RISK EVALUATION

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: BENZENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	16 days	$t_{1/2}$	1
Soil/water partitioning coefficient	81 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	6.21 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00243 mg/l	K_d	III	1
Contamination Percolation Rate	129.7 ft/yr	V_c	III	2
Time to Reach Groundwater	6.19 days	T_c	IV	1
Concentration Reaching Groundwater	6.21 mg/l	C_w	IV	2
Site Specific Target Level	0.228245 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR BENZENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil: 30 mg/kg f_{oc}

Total Petroleum Hydrocarbon (EPA Method 3550): 361 mg/kg TPH

Total organic carbon content: 0.000227 % f_{cs}

concentration of the COC in soil (worst case sample): 0.866 mg/kg C_s
porosity: 0.45 Φ
residual water content: 0.04 W_r
bulk density of soil: 1.05 g/cc Bd
soil organic/water partitioning coefficient: 81 ml/g Koc
Henry's Law Constant: 0.226 H'

concentration of the COC in soil pore water: 6.212208 mg/l C_w

EQUATION SET II

air filled porosity: 0.41 f

field saturated hydraulic conductivity: 0.00014 cm/sec
distance from the depth of the worst case soil sample to the water table: 67 cm L
average annual recharge: 25 cm H_w
wetting front suction head: 30 cm H_f

time required for water to travel distance (L): 530874 seconds 6.144339 days t
velocity of water: 130.4304 ft/yr V_w

EQUATION SET III

soil/water distribution coefficient: 0.00243 ml/g K_d

COC percolation rate: 129.695 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.186279 days T_c

biodegradation "half-life" of COC: 16 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

4.750606 mg/l C_{rbsl}

If 6.212208 is less than 4.750606 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 0.228245 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: TOLUENE			
(BTEX, Naphth.)			Table
Bioremediation "half-life"	22 days	$t_{1/2}$	1
Soil/water partitioning coefficient	133 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	36.99 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00399 mg/l	K_d	III	1
Contamination Percolation Rate	129.23 ft/yr	V_c	III	2
Time to Reach Groundwater	6.21 days	T_c	IV	1
Concentration Reaching Groundwater	36.99 mg/l	C_w	IV	2
Site Specific Target Level	2.231452 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR TOLUENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil:	30 mg/kg		f_{oc}
Total Petroleum Hydrocarbon (EPA Method 3550):	361 mg/kg		TPH
Total organic carbon content:	0.000227 %		f_{cs}
concentration of the COC in soil (worst case sample):	6.62 mg/kg		C_s
porosity:	0.45		Φ
residual water content:	0.04		W_r
bulk density of soil:	1.05 g/cc		Bd
soil organic/water partitioning coefficient:	133 ml/g		Koc
Henry's Law Constant:	0.301		H'
concentration of the COC in soil pore water:	36.98848 mg/l		C_w

EQUATION SET II

air filled porosity:	0.41		f
field saturated hydraulic conductivity:	0.00014 cm/sec		
distance from the depth of the worst case soil sample to the water table:	67 cm		L
average annual recharge:	25 cm		H_w
wetting front suction head:	30 cm		H_f
time required for water to travel distance (L):	530874 seconds	6.144339 days	t
velocity of water:	130.4304 ft/yr		V_w

EQUATION SET III

soil/water distribution coefficient: 0.00399 ml/g K_d

COC percolation rate: 129.2273 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.20867 days T_c

biodegradation "half-life" of COC: 22 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

30.41128 mg/l C_{rbsl}

If 36.98848 is less than 30.41128 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 2.231452 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: ETHYLBENZENE

(BTEX, Naphth.)			Table
Bioremediation "half-life"	10 days	$t_{1/2}$	1
Soil/water partitioning coefficient	176 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	24.71 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00528 mg/l	K_d	III	1
Contamination Percolation Rate	128.84 ft/yr	V_c	III	2
Time to Reach Groundwater	6.23 days	T_c	IV	1
Concentration Reaching Groundwater	24.71 mg/l	C_w	IV	2
Site Specific Target Level	1.97 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR ETHYLBENZENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil: 30 mg/kg f_{oc}

Total Petroleum Hydrocarbon (EPA Method 3550): 361 mg/kg TPH

Total organic carbon content: 0.000227 % f_{cs}

concentration of the COC in soil (worst case sample): 4.46 mg/kg C_s
porosity: 0.45 Φ
residual water content: 0.04 W_r
bulk density of soil: 1.05 g/cc Bd
soil organic/water partitioning coefficient: 176 ml/g Koc
Henry's Law Constant: 0.28 H'

concentration of the COC in soil pore water: 24.71325 mg/l C_w

EQUATION SET II

air filled porosity: 0.41 f

field saturated hydraulic conductivity: 0.00014 cm/sec
distance from the depth of the worst case soil sample to the water table: 67 cm L
average annual recharge: 25 cm H_w
wetting front suction head: 30 cm H_f

time required for water to travel distance (L): 530874 seconds 6.144339 days t
velocity of water: 130.4304 ft/yr V_w

EQUATION SET III

soil/water distribution coefficient: 0.00528 ml/g K_d

COC percolation rate: 128.843 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.227186 days T_c

biodegradation "half-life" of COC: 10 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

16.04361 mg/l C_{rbsl}

If 24.71325 is less than 16.04361 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 1.972931 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: XYLENE			
(BTEX, Naphth.)			Table
Bioremediation "half-life"	28 days	$t_{1/2}$	1
Soil/water partitioning coefficient	639 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	68.71 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.01917 mg/l	K_d	III	1
Contamination Percolation Rate	124.85 ft/yr	V_c	III	2
Time to Reach Groundwater	6.43 days	T_c	IV	1
Concentration Reaching Groundwater	68.71 mg/l	C_w	IV	2
Site Specific Target Level	19.92 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR XYLENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil: 30 mg/kg f_{oc}

Total Petroleum Hydrocarbon (EPA Method 3550): 361 mg/kg TPH

Total organic carbon content: 0.000227 % f_{cs}

concentration of the COC in soil (worst case sample): 19.3 mg/kg C_s
porosity: 0.45 Φ
residual water content: 0.04 W_r
bulk density of soil: 1.05 g/cc Bd
soil organic/water partitioning coefficient: 639 ml/g Koc
Henry's Law Constant: 0.278 H'

concentration of the COC in soil pore water: 68.71463 mg/l C_w

EQUATION SET II

air filled porosity: 0.41 f

field saturated hydraulic conductivity: 0.00014 cm/sec
distance from the depth of the worst case soil sample to the water table: 67 cm L
average annual recharge: 25 cm H_w
wetting front suction head: 30 cm H_f

time required for water to travel distance (L): 530874 seconds 6.144339 days t
velocity of water: 130.4304 ft/yr V_w

EQUATION SET III

soil/water distribution coefficient: 0.01917 ml/g K_d

COC percolation rate: 124.846 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.426553 days T_c

biodegradation "half-life" of COC: 28 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

58.5995 mg/l C_{rbsl}

If 68.71463 is less than 58.5995 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 19.9168 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: NAPHTHALENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	48 days	$t_{1/2}$	1
Soil/water partitioning coefficient	1543 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	30.44 mg/l	C_w	I	2
Air Filled Porosity	0.45 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.04629 mg/l	K_d	III	1
Contamination Percolation Rate	117.72 ft/yr	V_c	III	2
Time to Reach Groundwater	6.82 days	T_c	IV	1
Concentration Reaching Groundwater	30.44 mg/l	C_w	IV	2
Site Specific Target Level	21.3 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR NAPHTHALENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil: 30 mg/kg f_{oc}

Total Petroleum Hydrocarbon (EPA Method 3550): 361 mg/kg TPH

Total organic carbon content: 0.000227 % f_{cs}

concentration of the COC in soil (worst case sample): 11.4 mg/kg C_s
porosity: 0.45 Φ
residual water content: 0.04 W_r
bulk density of soil: 1.05 g/cc Bd
soil organic/water partitioning coefficient: 1543 ml/g K_{oc}
Henry's Law Constant: 0.002 H'

concentration of the COC in soil pore water: 30.43596 mg/l C_w

EQUATION SET II

air filled porosity: 0.41 f

field saturated hydraulic conductivity: 0.00014 cm/sec
distance from the depth of the worst case soil sample to the water table: 67 cm L
average annual recharge: 25 cm H_w
wetting front suction head: 30 cm H_f

time required for water to travel distance (L): 530874 seconds 6.144339 days t
velocity of water: 130.4304 ft/yr V_w

EQUATION SET III

soil/water distribution coefficient: 0.04629 ml/g K_d

COC percolation rate: 117.7159 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.815813 days T_c

biodegradation "half-life" of COC: 48 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

27.58056 mg/l C_{rbsl}

If 30.43596 is less than 27.58056 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 21.3021 mg/kg C_{sstl}

APPENDIX K
SPILLCAD COMPUTER DATA

1 The SPILLCAD Basics

1.1 What is SPILLCAD?

SPILLCAD was developed by Environmental Systems & Technologies, Inc. (ES&T) to provide a practical tool for hydrocarbon spill site assessment and remediation. SPILLCAD is unique in integrating database, mapping, graphics, and modeling functions in a single program. The heart of SPILLCAD is a relational database that allows you to view data on CAD-generated (DXF format) site maps– facilitating storage, retrieval, and graphical representation of data from monitoring wells and soil borings. You can view overlays of well and sampling locations, posted or contoured fluid level data, dissolved species concentrations, and species concentrations in soil on the site map at any scale. Also, you can plot time series of fluid level and concentration data.

You can use SPILLCAD to determine hydrocarbon volume from soil concentration data or from monitoring well fluid level data. SPILLCAD can also estimate soil and fluid properties required to carry out the calculations.

SPILLCAD graphically depicts the distribution of a free product plume, and estimates how much can be recovered

Most importantly, SPILLCAD enables you to evaluate various free product and dissolved plume control and recovery options. It allows you to assess the effects of pumping and/or injection wells placed at selected locations by graphically displaying the direction and magnitude of the oil or water flow gradient. Once free phase plume control is indicated, the volume of product that can ultimately be removed using the specified well configuration and pumping rates can be determined based on the computed fluid level changes and residual saturations. Time to reach asympotic recovery and free phase plume migration rate may be estimated. Graphical representation of the recovery analyses during an interactive session enables you to evaluate a large number of options very quickly to maximize recovery or minimize water pumping as dictated by treatment costs and cleanup criteria. Dissolved phase plume velocities and travel times and attenuation due to adsorption, decay and dispersion in a regional flow field may be evaluated.

The SPILLCAD User and Technical Guide is organized as follows:

The remainder of Chapter 1 focuses on hardware requirements, installation procedures, and information on technical support available to SPILLCAD users.

Chapter 2 discusses the database and graphics components of SPILLCAD.

Chapter 3 provides a detailed description of the operational features of the computational modules available for addressing various questions that arise during site assessment and remedial design investigations. The tools discussed in this chapter include modules designed to estimate the extent and volume of subsurface contamination and to perform quick screening of options for control and recovery of free product and dissolved plumes.

The computational tools described in this chapter include the following modules:

- SoilVol - This module is designed to estimate the volume or mass of soil contaminants (total hydrocarbon or individual species) or the volume of soil in which contaminant levels exceed a user-specified threshold.

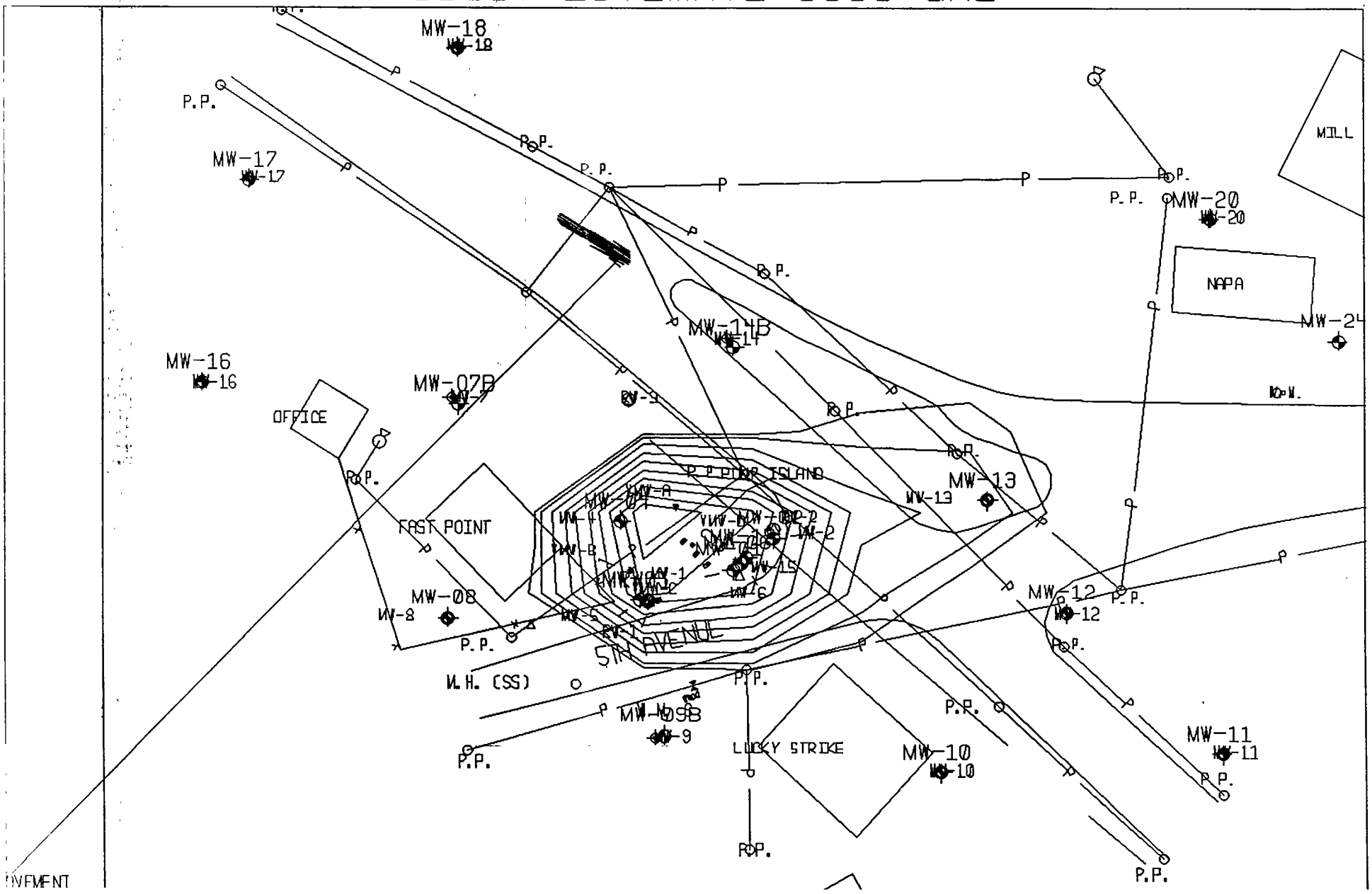
- WellVol - This module computes the volume of mobile free phase hydrocarbon floating at the water table from monitoring well fluid level data. The calculations take into consideration the effects of soil capillary properties and fluid-specific properties.

- QFree - This module allows the user to investigate effects of well placement and pumping (or injection) rates on hydraulic gradients to design a remediation system to control free product and/or dissolved plume migration. It also provides an estimate of the amount of recoverable product, to compare various well placement and operating options.

- Properties - This is a utility module that allows the user to estimate soil and fluid properties required by the computational modules.

- Plume - This module calculates the concentration of a plume from point sources in a uniform three-dimensional groundwater flow field.

PRODUCT ESTIMATE 5398 GAL



QUERY PRINT

PRODUCT THICKNESS

Id	X location	Y location	Sample Dat	Ho
MW-01	588.9000	364.8000	10/11/1996	1.0300
MW-02	611.2000	382.1000	10/11/1996	2.5300
MW-04	529.2000	391.6000	10/11/1996	0.8400
MW-05	539.3000	349.6000	10/11/1996	2.0400
MW-09B	551.3000	275.9000	10/11/1996	0.0000
MW-11	851.2000	266.2000	10/11/1996	0.0000
MW-12	768.1000	342.0000	10/11/1996	0.0000
MW-13	725.5000	402.7000	10/11/1996	0.4100
MW-14B	589.5000	485.3000	10/11/1996	0.0000
MW-17	329.0000	576.1000	10/11/1996	0.0000
MW-18	441.4000	647.9000	10/11/1996	0.0000
MW-19	636.9000	707.3000	10/11/1996	0.0000
MW-20	845.0000	555.3000	10/11/1996	0.0000
MW-24	913.8000	488.7000	10/11/1996	0.0000
MW-25	997.4000	371.7000	10/11/1996	0.0000
MW-26	969.8000	462.7000	10/11/1996	0.0000
MW-O7B	441.9000	453.8000	10/11/1996	0.0000

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11/15/96

SPILLCAD

GIVEN:

RECOVERY WELLS	DIAM	DEPTH	RECOVERY RATE (GPM)
RW-1	10"	55	0.05
RW-2	10"	55	0.05
RW-3	10"	55	0.05

	CASE I	CASE II
REGIONAL Z_{aq} DECREASE	= 10'	0'
INITIAL FREE OIL VOL	= 5398 GAL	5398 GAL
RECOVERABLE VOL.	= 0 ✓	1459 GAL

RESULTS:

- BASED ON THE GROUNDWATER FLUCTUATION OF 10', RECOVERABLE VOLUME IS RESTRICTED ACCORDING TO SPILLCAD MODELING.
- FREE PRODUCT RECOVERY TESTS SHOWED LOW RECOVERY RATE. SPILLCAD MODEL INDICATED THAT 0.05 GPM WAS MAXIMUM PUMPING RATE.

RECOMMENDATION:

- DUEL PHASE HIGH VACUUM EXTRACTION USING HORIZONTAL WELL LOCATED WITHIN THE BOTTOM ELEVATION OF THE LOW SEASONAL WATER TABLE FLUCTUATION ZONE.
- ALSO CONNECT EXISTING VERTICAL RECOVERY WELLS WITH DUEL PHASE HIGH VACUUM EXTRACTION

SPILLCAD MODEL CONDITIONS

209.60

Soil Properties

$K_{sw} = 0.05$ ft/day

$\phi = \cancel{0.55}\ 0.45$

$S_m = 0.864$

$\alpha = 17.338$ /ft.

$n = 1.497$

$S_{or} = 0.216$

$S_{og} = 0.06$

Fluid Properties

$\gamma_{gas} = 0.73$

$\mu_{ro} = 0.620$

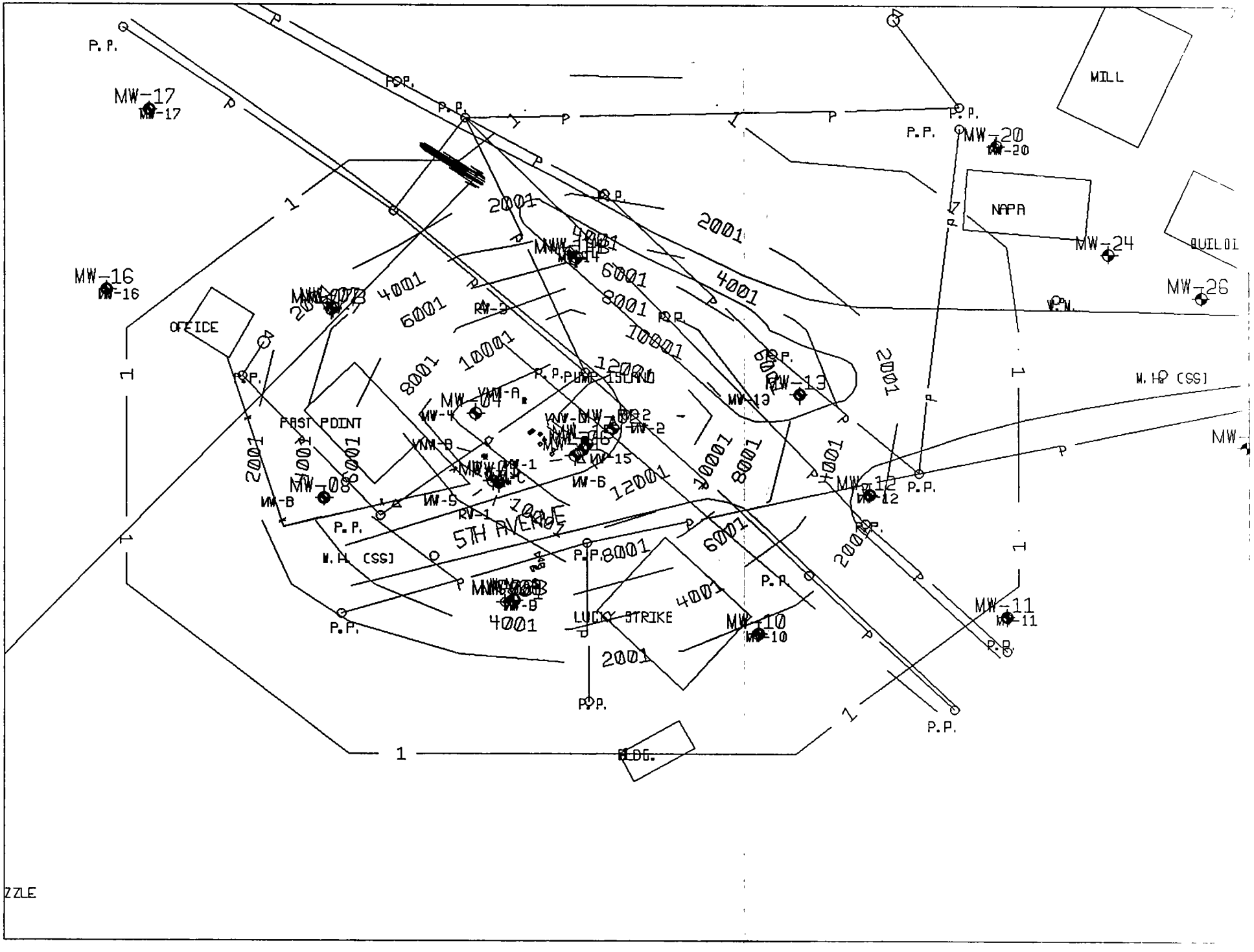
$B_{ao} = 3.3$

$B_{ow} = 1.4$

* KRIGE LOG TRANSFORM

APPENDIX L
BIOTRANS COMPUTER DATA

BENZENE 15 YR



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Id	X location	Y location	Sample Dat	Species	Concentratio
MW-01	588.9000	364.8000	10/03/1996	BENZENE	31200.0000
MW-02	611.2000	382.1000	10/03/1996	BENZENE	31200.0000
MW-04	529.2000	391.6000	10/03/1996	BENZENE	0.0000
MW-05	539.3000	349.6000	10/03/1996	BENZENE	31200.0000
MW-09B	551.3000	275.9000	10/03/1996	BENZENE	45.0000
MW-11	851.2000	266.2000	08/13/1996	BENZENE	0.0000
MW-12	768.1000	342.0000	08/13/1996	BENZENE	2.2000
MW-13	725.5000	402.7000	10/03/1996	BENZENE	31200.0000
MW-14B	589.5000	485.3000	10/03/1996	BENZENE	7800.0000
MW-17	329.0000	576.1000	10/03/1996	BENZENE	0.0000
MW-18	441.4000	647.9000	08/13/1996	BENZENE	0.0000
MW-19	636.9000	707.3000	08/13/1996	BENZENE	0.0000
MW-20	845.0000	555.3000	10/03/1996	BENZENE	10800.0000
MW-21	914.6000	753.8000	08/13/1996	BENZENE	0.0000
MW-22	1181.4000	626.2000	08/13/1996	BENZENE	0.0000
MW-24	913.8000	488.7000	10/03/1996	BENZENE	0.0000
MW-25	997.4000	371.7000	10/03/1996	BENZENE	2510.0000
MW-26	969.8000	462.7000	10/03/1996	BENZENE	9200.0000

1 Getting Started with BioTrans

1.1 Introduction

BioTrans models areal transport of multiple dissolved contaminants and oxygen in groundwater due to convection and hydrodynamic dispersion. Adsorption of contaminants is considered and decay may be modeled as a first order reaction or as an oxygen-limited process. Transport is considered in the mobile fraction of the pore space with rate-limited mass transfer between mobile and immobile pore space. Mass loading rates to groundwater may be specified by the user or computed internally due to dissolution from a nonaqueous phase liquid (NAPL). Mass may be removed from the groundwater through pumping and by losses through outflow boundaries.

Soluble species in the NAPL serve as a source of contaminant to groundwater over time through two mechanisms. First, water infiltrating through the unsaturated zone leaches soluble components, which are assumed to be in equilibrium with the NAPL. Second, groundwater in contact with the NAPL at or below the water table removes soluble components according to a nonequilibrium mass transfer function. As contaminant is removed from the nonaqueous phase liquid, the mass fraction of contaminant in it diminishes which decreases the equilibrium aqueous concentration.

In addition to groundwater velocities, pumping rates, initial nonaqueous liquid distribution and initial contaminant mass fractions, data requirements include porous media dispersivities, pure component solubilities, adsorption coefficients, aqueous decay coefficients or oxygen stoichiometric factors, and NAPL-water and mobile-immobile mass transfer coefficients, total and mobile porosity, and oxygen concentrations in influent water. Input requirements are reduced if some processes are not considered, such as oxygen-limited decay or mass transfer kinetics. The model computes dissolved concentrations versus time throughout the spatial domain.

BioTrans consists of two programs: a Pre-/Post-processor module (PreTrans), and the main finite element module RunTrans. Groundwater velocities and the spatial distribution of NAPL computed by SpillCAD or ARMOS are used to define the groundwater flow field and source distributions for BioTrans.

4 Modeling Approach for Dissolved Phase Transport

4.1 Transport Model Formulation

4.1.1 Mobile Zone Mass Transport

BioTrans models transport of dissolved oxygen and up to five organic species (or pseudo-species) in porous or fractured media. The source of contamination may be a user specified mass rate or it may be internally computed to model dissolution from a nonaqeuous phase liquid (NAPL) plume. The NAPL plume is assumed to be immobile (e.g., at residual saturation or hydraulically contained) and soluble contaminants in the NAPL are gradually released to the groundwater. The aquifer is conceptualized as a bimodal porous medium with mobile water occupying a fraction of the pore space (e.g., fractures or foliation planes) and immobile water in the remainder (e.g., relatively impermeable matrix). Transport occurs by convection and dispersion in mobile zones with diffusive mass transfer between mobile and matrix zones. Equilibrium adsorption, oxygen-limited biodecay or first-order biodecay may be considered (within both the mobile and matrix zones). Groundwater velocity vectors, aquifer thickness, pumping/ injection rates, distributed recharge and initial NAPL distributions used by BioTrans are read from files generated by ARMOS or SpillCAD or a uniform velocity may be specified directly in BioTrans.

The vertically integrated governing equation for transport of dissolved species in the mobile regions may be written in tensor notation as

$$(\phi_m + \rho_b f_m k_{d\alpha})\frac{\partial C_{m\alpha}}{\partial t} = \frac{\partial}{\partial x_i}\left(\phi_m D_{ij}\frac{\partial C_{m\alpha}}{\partial x_j}\right) - \frac{\partial q_i C_{m\alpha}}{\partial x_i} - \gamma_{m\alpha} - Q_v C_\alpha^w + \frac{S_\alpha}{L} - M_\alpha \qquad (4.1)$$

where $C_{m\alpha}$ is the aqueous phase concentration of species α (contaminant or oxygen) in the mobile regions [ML^{-3}], t is time [T], x_i and x_j are horizontal spatial coordinates (i,j=1,2) [L], ϕ_m is the mobile zone porosity [$L^3\ L^{-3}$], ρ_b is the aquifer dry bulk density [M L^{-3}], f_m is the fraction of the aquifer solids that are in the mobile zone, $k_{d\alpha}$ is the solid-water distribution coefficient [$L^3\ M^{-1}$], D_{ij} is a dispersion tensor in the mobile region [L^2T^{-1}], q_i is the Darcy velocity for water in the i-direction [LT^{-1}], $\gamma_{m\alpha}$ is the decay rate for species α in the mobile region [$ML^{-3}T^{-1}$], Q_v is the volumetric withdrawal (+) or injection (-) rate of water per unit volume of aquifer [T^{-1}], C_α^w is the concentration of α in water being withdrawn or injected, and S_α is a source term due to dissolution of contaminant from NAPL [$ML^{-2}T^{-1}$], L is the aquifer thickness [L], and M_α is the net rate of mass transfer between fracture and matrix zones (positive for loss to mobile zone). For steady-state flow, mass conservation for the water phase requires

$$\frac{\partial q_i}{\partial x_i} = -Q_v \,. \tag{4.2}$$

If Q_v represents distributed recharge, it is equal to the recharge rate [volume per area per time] divided by aquifer thickness. For point sources or sinks, it is the volumetric rate divided by aquifer thickness and the nodal area. Expanding the second term on the right-hand side of (4.1), using (4.2) after multiplying by $C_{m\alpha}$, yields

$$(\phi_m + \rho_b f_m k_{d\alpha})\frac{\partial C_{m\alpha}}{\partial t} = \frac{\partial}{\partial x_i}\left(\phi_m D_{ij}\frac{\partial C_{m\alpha}}{\partial x_j}\right) - q_i\frac{\partial C_{m\alpha}}{\partial x_i}$$

$$-\gamma_{m\alpha} + \frac{S_\alpha}{L} - M_\alpha + C_{m\alpha}Q_v - C_{m\alpha}^w Q_v \,. \tag{4.3}$$

For pumping wells, we assume $C_\alpha^w = C_{m\alpha}$, and the last two terms in (4.3) cancel. For injection wells, the mass injection rate ($C_{m\alpha}^w\ Q_v$) must be specified by the user. This term is also used to define user specified contaminant loading rate (4.4) to the aquifer. Contaminant loading due to NAPL dissolution is automatically computed by BioTrans if a NAPL source has been specified. The dispersion tensor in the mobile pore region is characterized by (*Bear*, 1972)

$$D_{ij} = \frac{1}{\phi_m}\left(A_T\bar{q}\delta_{ij} + (A_L - A_T)\frac{|q_i q_j|}{\bar{q}}\right) \tag{4.4}$$

MEADE GUNNELL
engineering & surveying, P.C.

RECEIVED
NOV 9 1998
DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

October 30, 1998

Ms. Rhonda Sox
South Carolina Department of Health and Environmental Control
Division of Underground Storage Tank Management
2600 Bull Street
Columbia, South Carolina 29201-1708

Reference: Proposal for Site Assessment Report
Former Crown Station SC-576
200 North Mine Street (SC 28)
McCormick, South Carolina
SC ID # 06443
MEADE Project No. 209.60

Dear Ms. Sox:

On behalf of Crown Central Petroleum Corporation, MEADE GUNNELL engineering & surveying, P.C., formerly MEADE engineering and environmental, P.C., submits the Site Assessment Report for the above referenced site.

Please contact us at 704-398-9805 if you have any questions or comments concerning this report.

Sincerely,
MEADE GUNNELL engineering & surveying, P.C.

UST
36 Ver
DOCKETING

J. Perry Mayhew, E.I.T.
Staff Engineer

Jerry L. Meade, P.E.
Principal

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
NO. 11303

SOUTH CAROLINA
MEADE ENGINEERING & ENVIRONMENTAL, P.C.
No. C00502
CERTIFICATE OF AUTHORIZATION

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SCANNED

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3.0 GROUNDWATER QUALITY DATA 2
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Appendix A Laboratory Analytical Data
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SITE ASSESSMENT REPORT

Former Crown Service Station No. SC-576
200 North Mine Street (SC Hwy 28)
McCormick, McCormick County, South Carolina
SC ID No. 06443

1.0 INTRODUCTION

In accordance with the authorization of Crown Central Petroleum Corporation (Crown), and South Carolina Department of Health and Environmental Control, Meade Gunnell engineering and surveying, P.C. has completed this Site Assessment Report for the former Crown Service Station No. SC-576 located at 200 North Mine Street (SC Hwy 28), McCormick, South Carolina (South Carolina I.D. No. 6443).

2.0 MONITORING WELL GAUGING DATA

On August 19, 1998 three to four well volumes were removed from seventeen (17), monitoring wells at the subject site. On August 20, 1998, after allowing the monitoring wells to recharge, all monitoring wells at the subject site were gauged (Table 1). Groundwater at the site ranges from approximately 12.2 to 31.7 feet below grade. A potentiometric surface map was constructed using the gauging data collected on August 20, 1998 and is presented as Figure 3. The potentiometric surface map indicates that the general groundwater flow direction at the site is to the northeast.

In addition to sampling thirteen monitoring wells, eight (8), monitoring wells contain free phase product ranging from 3.94 to 0.01 (Figure 9). Three (3), wells were dry (MW-8, MW-16, VMW-A).

3.0 GROUNDWATER QUALITY DATA

On August 20, 1998, groundwater samples were collected from thirteen (13) of the monitoring wells located at the site. Monitoring wells were sampled using clean designated disposable teflon bailers. The groundwater samples were labeled, placed into an ice-packed cooler, and transported to Hydrologic Laboratories (Hydrologic) located in Charlotte, North Carolina. The samples for monitoring wells MW-7B, MW-9B, MW11 through MW12, MW-14B, MW-17 through MW-22, and MW-24 through MW-267 were analyzed by Hydrologic using EPA Test Method 504.1 extended to include 1,2-dibromoethane (EDB) 8260 extended for MTBE, Naphthalene, and BTEX, 8270 (PAH's) and 3030 for lead. See Table 2 for a summary of organic constituents detected in the groundwater. Appropriate chain-of-custody procedures were followed. Laboratory analytical data for the August 20, 1998, sampling events are included in Appendix A.

Benzene, toluene, ethylbenzene, and xylene (BTEX) constituents were detected in monitoring wells MW-7B, MW-9B, MW-11, MW-12, MW-14B, MW-19, MW-20, MW-24, MW-25, and MW-26. BTEX was detected in the same wells during the sampling event in fall of 1996 with the exception of MW-11 and MW-12. The level of BTEX had decreased in MW-9B, MW-14B, MW-24, and MW-25. BTEX increased in MW-20 and MW-26. Methyl-t-butyl ether (MTBE) was detected in monitoring wells MW-14B, MW-20, MW-25, and MW-26. MTBE had not been detected in MW-14B and MW-26 in previous sampling. The compound 1,2 Dibromoethane (EDB) was detected in monitoring wells MW-12, MW-14B, MW-18, MW-20, MW-24, MW-25, and MW-26. Naphthalene was detected in MW-7B, MW-14B, MW-20, MW-24, MW-25, and MW-26. 1-Methyl

Naphthalene and 2-Methyl Naphthalene (PAH's) was detected in MW-7B, MW-14B, MW-20, MW-24, MW-25, and MW-26. Lead was detected in MW-14B, MW-20, MW-21, MW-22, MW-24, and MW-26. Table 2 contains a summary of the analytical data. Isoconcentration Maps were constructed using the analytical data collected on August 20, 1998, and are presented as Figures 4 through 8. Laboratory analytical data for the August 20, 1998 sampling event is included in Appendix A.

4.0 GEOPHYSICAL SURVEY

On August 19, 1998 a Geophysical survey was conducted by O'Brien & Gere Engineers, Inc. A copy of the report is submitted under separate cover.

5.0 CONCLUSION

The August 1998 analytical results show a slight decrease in BTEX near the site, but an increase in several wells further from site when compared to the Fall 1996 analytical results. Product thickness appears to have slightly increased in monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5. The decrease in BTEX in monitoring wells near the source and subsequently, the increase in BTEX concentrations further from the source is likely due to migration of the organic constituents. Laboratory results are contained in Appendix A. We recommend product removal to begin at the site.

Monitoring wells MW-3, MW-17, and MW-23 were not found. MW- 17 has been paved over with asphalt, and needs to be abandoned. Additionally, it is recommended that MW-7, MW-9, MW-14, and MW-16 be abandon. VMW-B should either be abandoned or a new well head installed so that a lockable well cap can be placed on the well. The well head plate for MW-2 is broken and should be replaced.

On October 2, 1998 twenty-one (21), drums of soil and four (4), drums of water were removed from the site for treatment and disposal. No other drums remain at the site. Soil Solutions, incorporated of 1703 Vargrave Street, Winston-Salem, NC transported and disposed of the water and soil. Appendix B contains the manifest.

TABLE 1a

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	Total Depth (ft)	Screen Interval (ft)	Top of Casing (ft)	Date Measured	Depth to Product (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Product Thickness (ft)	Casing Diameter (in)
MW-01			100.03	8/13/96	20.12	23.5	79.07	3.38	2
				10/11/96	22.20	23.23	77.57	1.03	
				8/20/98	20.60	24.54	78.45	3.94	
MW-02			99.31	8/13/96	19.59	20.89	79.40	1.30	2
				10/11/96	20.75	23.28	77.93	2.53	
				8/20/98	19.51	23.32	78.85	3.81	
MW-04			101.51	8/13/96	21.42	24.06	79.43	2.64	2
				10/11/96	23.45	24.29	77.85	0.84	
				08/20/98	22.18	24.83	78.67	2.65	
MW-05			102.16	8/13/96	21.89	24.08	79.72	2.19	2
				10/11/96	23.40	25.44	78.25	2.04	
				8/20/98	22.26	25.14	79.18	2.88	
MW-06			100.45	8/13/96		20.97	79.48		2
				10/11/96		22.39	78.06		
				08/20/98		21.54	78.91		
MW-07	19.64	10-19.64	100.93	8/13/96		DRY	DRY		2
				10/11/96		NM	NM		
MW-07B	30	15-30	101.43	10/11/96		23.83	77.60		2
				8/20/98		23.47	77.96		
MW-08	20	10-20	103.85	8/13/96		DRY	DRY		2
				10/11/96		DRY	DRY		
				8/20/98		DRY	DRY		

NM = Not Measured

TABLE 1b

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	**Total Depth (ft)**	**Screen Interval (ft)**	**Top of Casing (ft)**	**Date Measured**	**Depth to Product (ft)**	**Depth to Water (ft)**	**Groundwater Elevation (ft)**	**Product Thickness (ft)**	**Casing Diameter (in)**
MW-09	18	8-18	99.13	8/13/96 10/11/96		DRY NM	DRY NM		2
MW-09B	30	15-30	98.99	10/11/96 8/20/98		20.09 19.69	78.9 79.30		2
MW-10	18	8-18	93.35	8/13/96 10/11/96 8/20/98		DRY DRY 17.80	DRY DRY 75.55		2
MW-11	15	5-15	85.80	8/13/96 10/11/96 8/20/98		11.97 11.69 12.21	73.83 74.11 73.59		2
MW-12	23.5	8.5-23.5	94.95	8/13/96 10/11/96 8/20/98		18.82 19.16 19.22	76.13 75.79 75.73		2
MW-13	25	9.5-25	98.25	8/13/96 10/11/96 8/20/98	18.77 20.29 19.41	19.15 20.70 19.56	79.39 77.86 78.80	0.38 0.41 0.15	2
MW-14	20.5	10.5-20.5	100.59	8/13/96 10/11/96		DRY NM	DRY NM		2
MW-14B	40	20-40	100.7	10/11/96 8/20/98		23.08 22.72	77.66 77.98		2

NM = Not Measured

TABLE 1c

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	Total Depth (ft)	Screen Interval (ft)	Top of Casing (ft)	Date Measured	Depth to Product (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Product Thickness (ft)	Casing Diameter (in)
MW-15	130	125-130	100.08	8/13/96 10/11/96		20.92 22.3	79.16 77.78		2
MW-16	23.5	13-23.5	100.57	8/13/96 10/11/96 8/20/98		DRY DRY 22.35	DRY DRY 78.22		2
MW-17	23.5	13-23.5	96.79	8/13/96 10/11/96 8/20/98		19.91 20.12 NM	76.88 76.67 NM		2
MW-18	23.5	13-23.5	95.79	8/13/96 10/11/96 8/20/98		19.32 18.93 21.27	76.47 76.86 74.52		2
MW-19	22.5	12-22.5	94.61	8/13/96 10/11/96 8/20/98		17.93 17.6 20.07	76.68 77.01 74.54		2
MW-20	38.5	18-38.5	98.9	8/13/96 10/11/96 8/20/98	24.01	24.02 23.94 25.34	74.88 74.96 73.56	0.01	2
MW-21			97.54	8/13/96 10/11/96 8/20/98		27.19 NM 28.58	70.35 68.96		2
MW-22	40	30-40	100.87	8/13/96 10/11/96 8/20/98		30.83 NM 31.76	70.04 69.11		2

NM = Not Measured

TABLE 1d

SUMMARY OF MONITORING WELL DATA
Former Crown Station SC-576
McCormick, South Carolina
Meade Project No. 209.60

Monitoring Well Data									
Monitoring Well No.	Total Depth (ft)	Screen Interval (ft)	Top of Casing (ft)	Date Measured	Depth to Product (ft)	Depth to Water (ft)	Groundwater Elevation (ft)	Product Thickness (ft)	Casing Diameter (in)
MW-24	40	35-40	97.17	10/11/96		22.53	74.64		2
				8/20/98		22.02	75.15		
MW-25	30	15-30	94.97	10/11/96		23.33	71.64		2
				8/20/98		23.3	71.67		
MW-26	30	15-30	96.36	10/11/96		23.42	72.94		2
				8/20/98		22.53	73.83		
VMW-A				8/20/98		DRY			
VMW-B	20.2			8/20/98	16.84	16.85		0.01	
VMW-C	20.5			8/20/98	18.42	18.43		0.01	
VMW-D				8/20/98	18.89	18.90		0.01	

NM = Not Measured

TABLE 2a

SUMMARY OF ORGANIC CONSTITUENTS DETECTED IN GROUNDWATER

Former Crown Station No. sc 576, McCormick, SC

Meade Project No. 209.60

MONITORING WELL	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	BTEX (ug/l)	[2]MTBE (ug/l)	[3]PAH'S (ug/l)	[1]EDB (ug/l)	Naphtha-lene (ug/l)	LEAD (mg/l)
MW-7B	10/3/96	35	94	43	174	346	ND	16	ND	18	0.134
	8/20/98	31	15	41	141	228	ND	10	ND	41	ND
MW-9B	10/3/96	45	285	46	212	588	ND	ND	ND	ND	0.024
	8/20/98	ND	1	ND	ND	1	ND	ND	ND	ND	ND
MW-11	8/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.008
	8/20/98	ND	0.8	0.90	ND	2	ND	ND	ND	ND	ND
MW-12	8/13/96	2.2	ND	ND	ND	ND	ND	ND	ND	ND	0.013
	8/20/98	2.2	1	ND	ND	3	ND	ND	0.26	ND	ND
MW-14B	10/3/96	7800	18100	2300	10600	38800	ND	695	ND	ND	0.199
	8/20/98	7225	12612	1244	6192	27273	158	153	42.40	403	0.011
MW-17	8/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.004
	8/20/98	NT	NT	NT	NT	ND	NT	NT	NT	NT	NT
MW-18	8/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.006
	8/20/98	ND	ND	ND	ND	ND	ND	ND	0.20	ND	ND
MW-19	8/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.013
	8/20/98	ND	1	ND	ND	1	ND	ND	ND	ND	ND
MW-20	10/3/96	10800	17800	1900	9240	39740	1800	660	ND	ND	0.302
	8/20/98	9950	19800	3050	16150	48950	1500	519	68	5150	0.044
MW-21	8/13/96	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.121
	8/20/98	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.117
MW-22	8/13/96	ND	1	ND	ND	1	ND	ND	ND	ND	0.032
	8/20/98	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.009
[4]RBSL's		5	1000	700	10000		40			25	

[1] EDB: 1,2-Dibromoethane

[2] MTBE: Methyl-t-butyl ether

[3] PAH'S - Total PAH's concentration (1- Methyl Naphthalene and 2- Methyl Naphthalene)

[4] RBSL's = Risk-Based Screening Levels for Groundwater

ND = Not Detected

NT = Not Tested

TABLE 2b

SUMMARY OF ORGANIC CONSTITUENTS DETECTED IN GROUNDWATER

Former Crown Station No. sc 576, McCormick, SC

Meade Project No. 209.60

MONITORING WELL	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethyl-benzene (ug/l)	Xylenes (ug/l)	BTEX (ug/l)	[2]MTBE (ug/l)	[3]PAH'S (ug/l)	[1]EDB (ug/l)	Naphtha-lene (ug/l)	LEAD (mg/l)
MW-24	10/3/96	ND	135	155	715	1005	ND	48.0	ND	ND	0.004
	8/20/98	2.6	2	12	86	102	ND	16.7	0.18	12.90	0.009
MW-25	10/3/96	2510	85	2160	4590	9345	447	420.0	ND	480	0.02
	8/20/98	3081	19	6	3046	6152	788	144.0	2.48	393	ND
MW-26	10/3/96	9200	18370	2100	9800	39470	ND	655.0	ND	ND	0.01
	8/20/98	9760	19053	2455	12534	43802	200	367.4	45	728	0.003
[4]RBSL's		5	1000	700	10000		40			25	

[1] EDB: 1,2-Dibromoethane

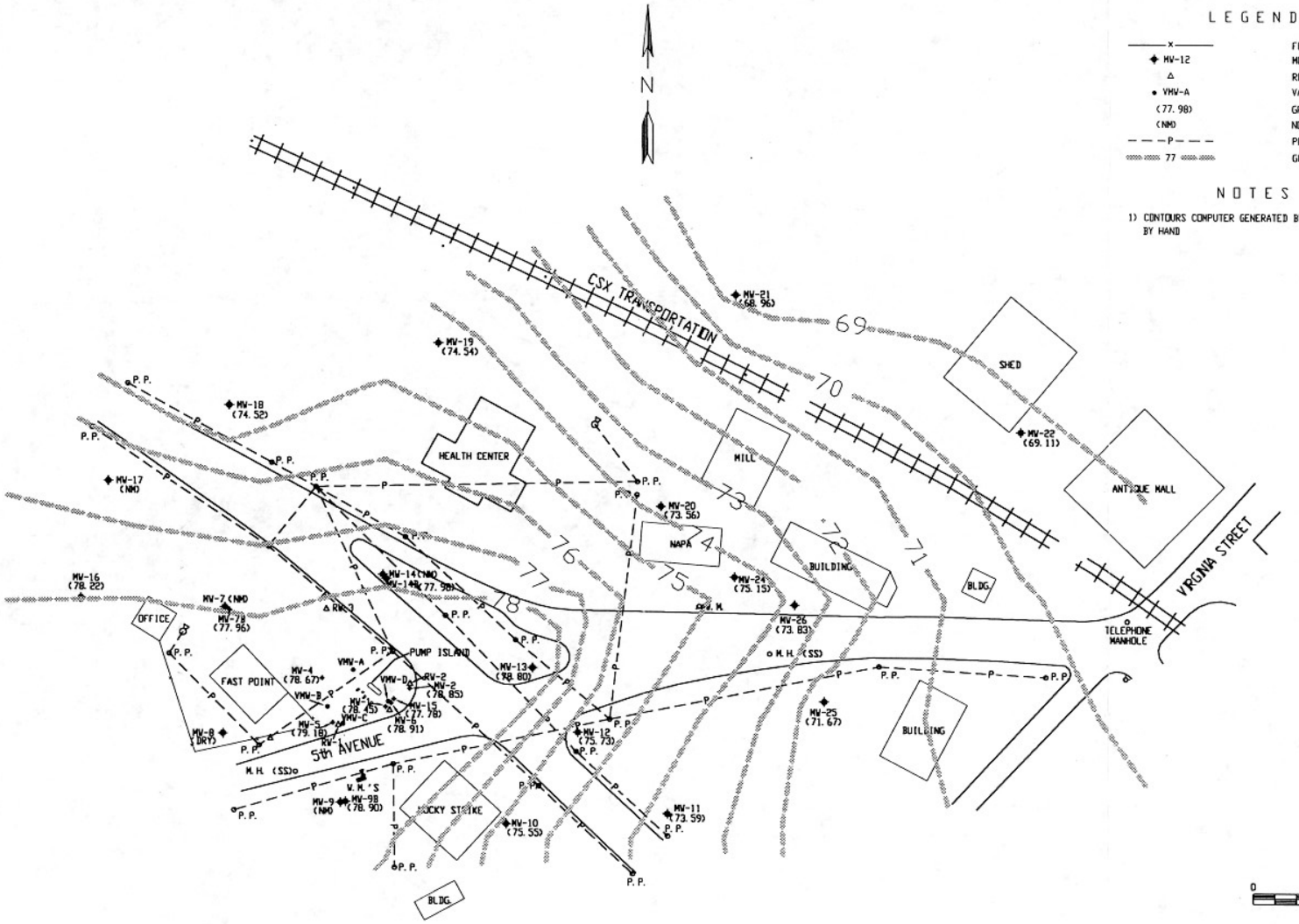
[2] MTBE: Methyl-t-butyl ether

[3] PAH'S - Total PAH's concentration (1- Methyl Naphthalene and 2- Methyl Naphthalene)

[4] RBSL's = Risk-Based Screening Levels for Groundwater

ND = Not Detected

NT = Not Tested



LEGEND

——x——	FENCE
✦ MV-12	MONITORING WELL
△	RECOVERY WELL
• VMV-A	VAPOR MONITORING WELL
(77.98)	GROUNDWATER ELEVATION (FEET)
(NM0	NOT MEASURED
——P——	POWER LINE
77	GROUNDWATER POTENTIOMETRIC CONTOUR (FEET)

NOTES

1) CONTOURS COMPUTER GENERATED BY "BIOTRANS" AND MODIFIED BY HAND

0 100 200
SCALE: 1" = 100'

MEADE engineering & environmental, P.C.

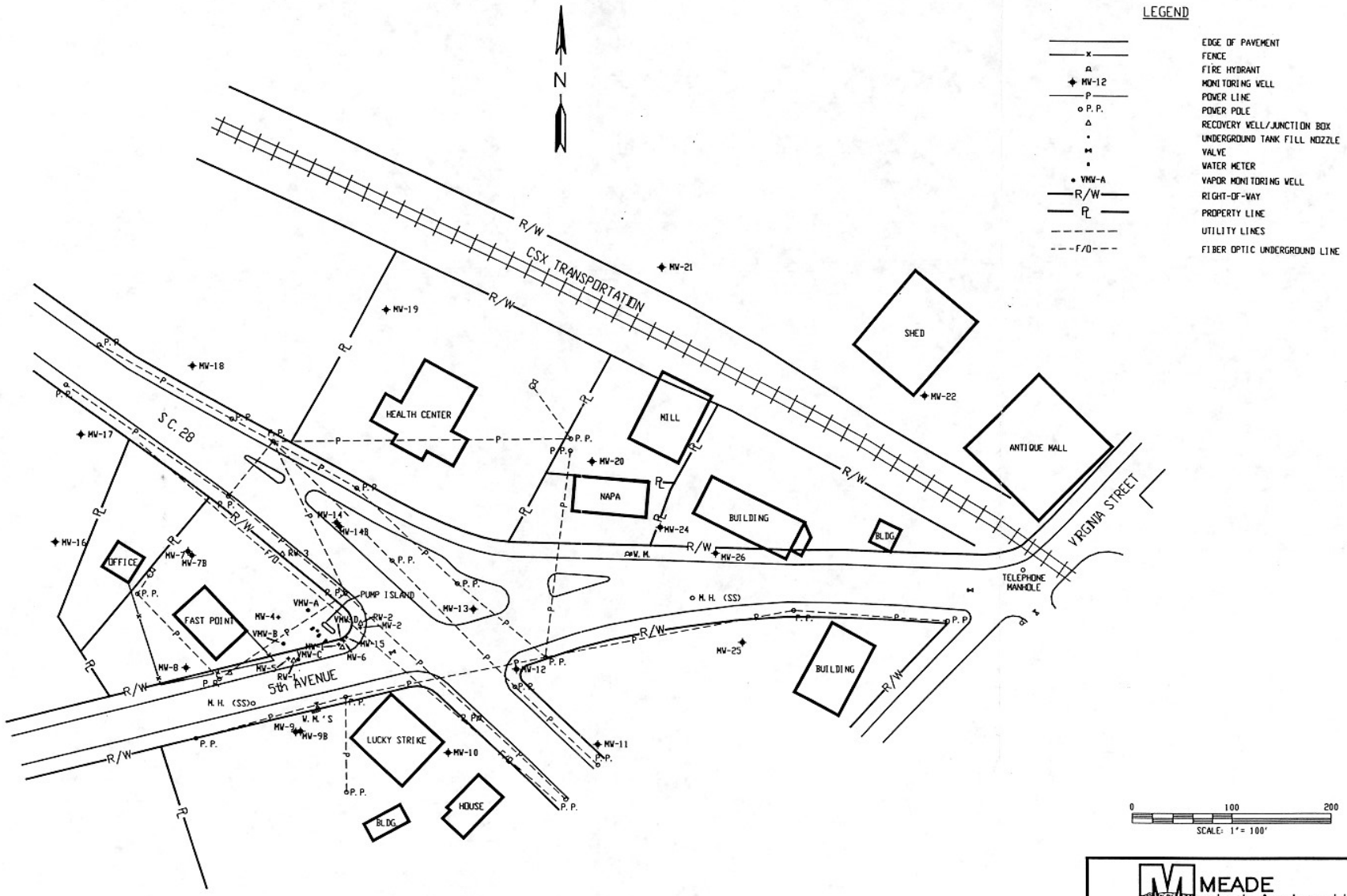
FORMER CROWN STATION SC-576
McCORMICK, S.C.

GROUNDWATER POTENTIOMETRIC SURFACE MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 3

PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

REF: aug98gw



REFERENCE:
Physical survey prepared by Davis & Floyd, Inc.
Dated: August 13, 1996
ACAD FILE: 209base.dwg
Revised 10/15/96

NOTES:
1)Property lines and Right-of-Way lines were obtained from tax map/aerial photo overlay McCormick 126-05 and 45065 277 113-x5, repectively. Boundary lines were not verified by a surveyor

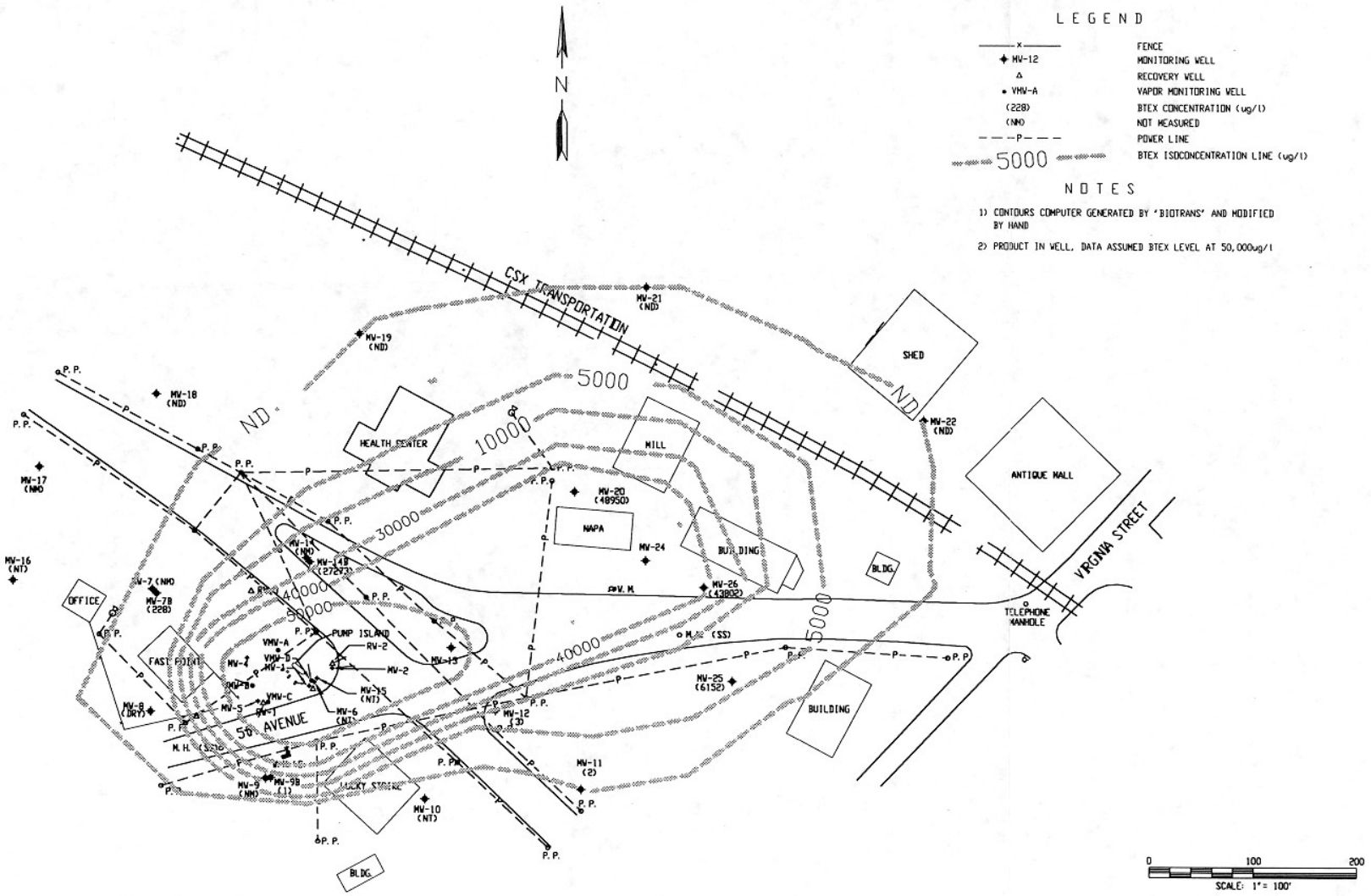
PUBLICATION OR REUSE OF THESE DRAWINGS OR ANY DETAILS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

MEADE engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

SITE PLAN

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 2



PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

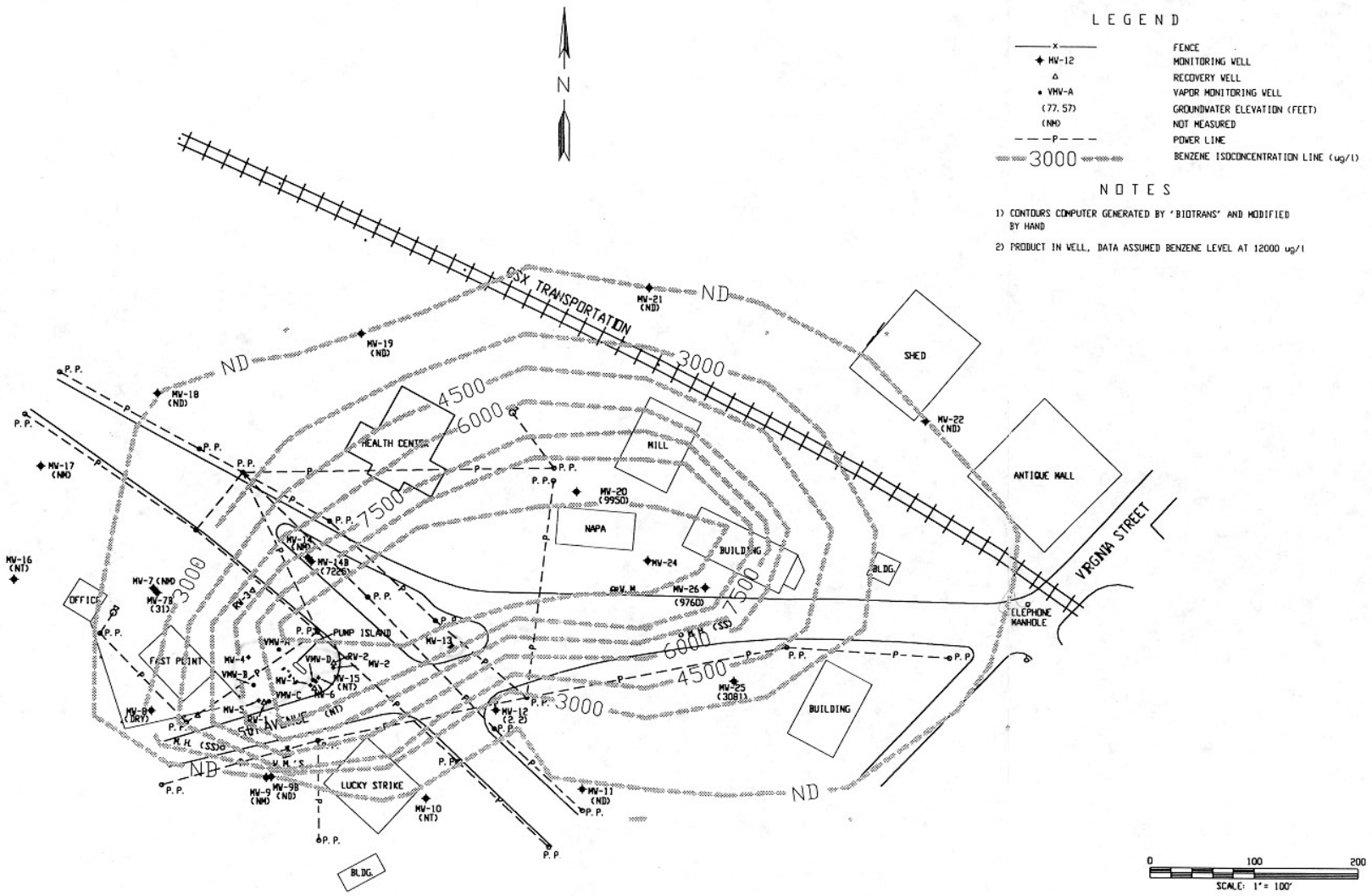
REF: 209btex

MEADE engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

BTEX ISOCONCENTRATION MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 4



MEADE engineering & environmental, P.C.

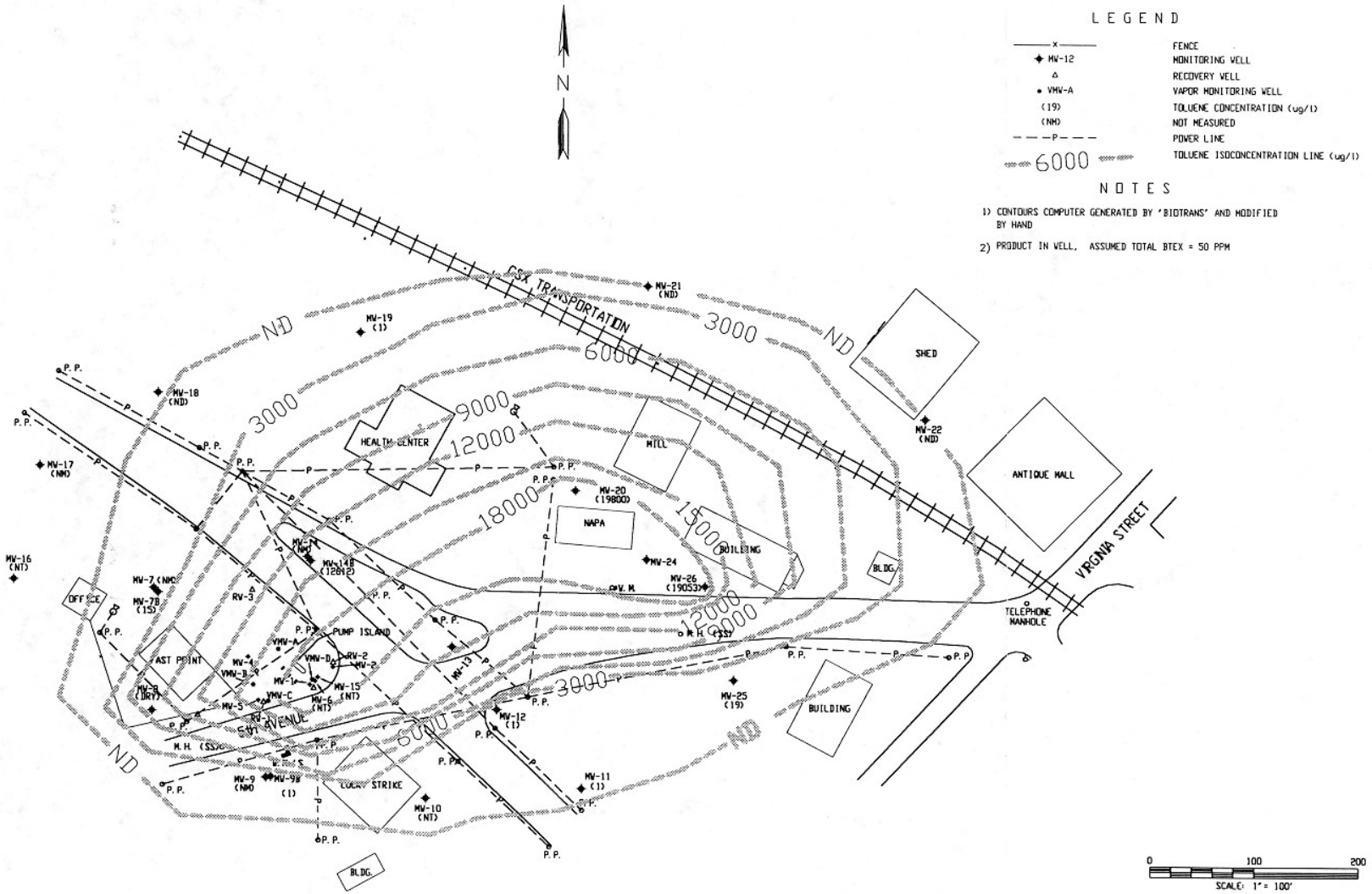
FORMER CROWN STATION SC-576
McCORMICK, S.C.

BENZENE ISOCONCENTRATION MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 5

PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

FEF: 209benz



MEADE engineering & environmental, P.C.

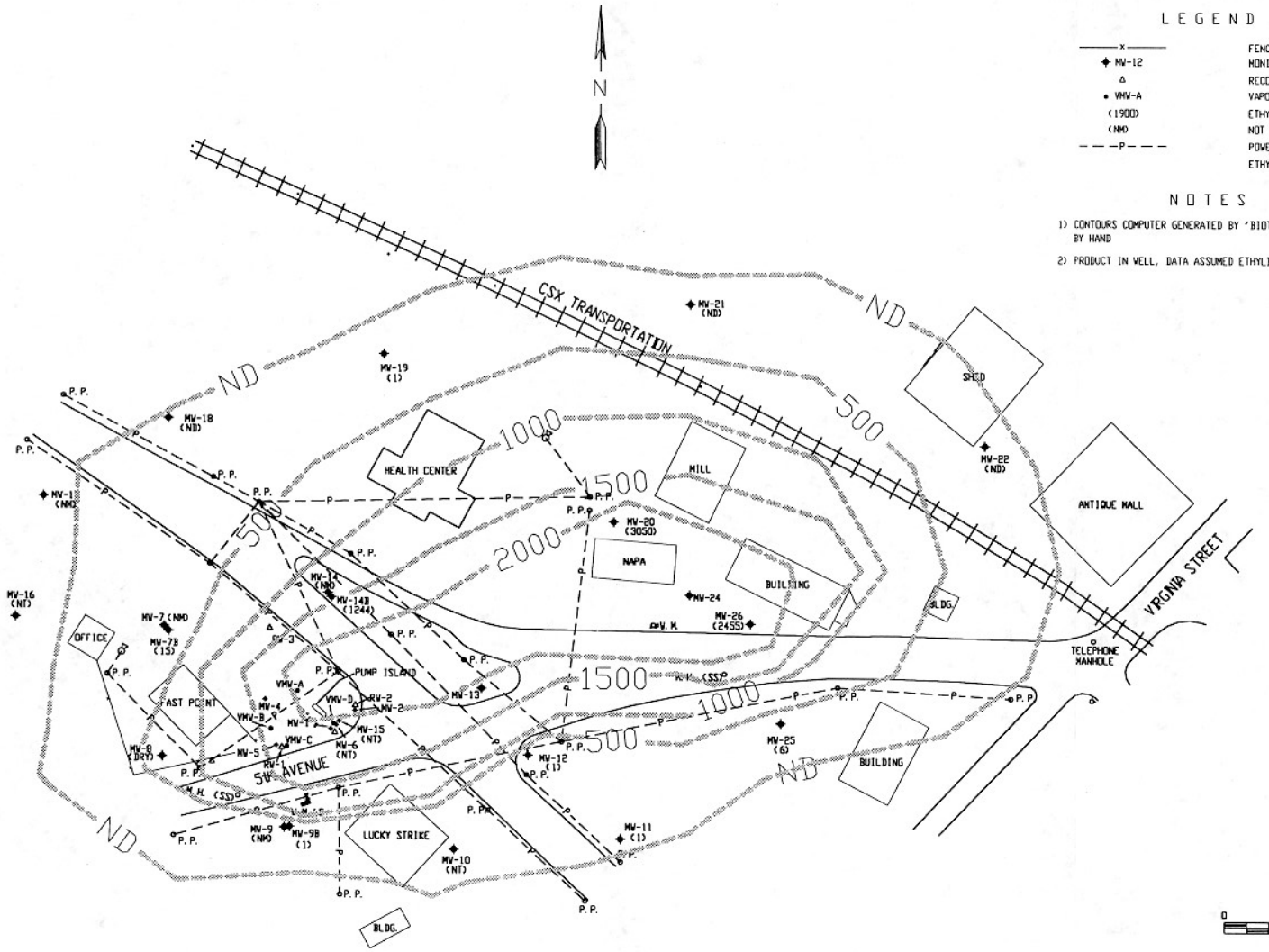
FORMER CROWN STATION SC-576
McCORMICK, S.C.

TOLUENE ISOCONCENTRATION MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 6

PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

REF: 209tolu



LEGEND

——x——	FENCE
✦ MW-12	MONITORING WELL
Δ	RECOVERY WELL
• VMW-A	VAPOR MONITORING WELL
(1900)	ETHYLBENZENE CONCENTRATION (ug/l)
(NM)	NOT MEASURED
——P——	POWER LINE
	ETHYLBENZENE ISOCONCENTRATION LINE (ug/l)

NOTES

1) CONTOURS COMPUTER GENERATED BY 'BIOTRANS' AND MODIFIED BY HAND

2) PRODUCT IN WELL, DATA ASSUMED ETHYLBENZENE LEVEL AT 2500 (ug/l)

0 100 200

SCALE: 1" = 100'

MEADE engineering & environmental, P.C.

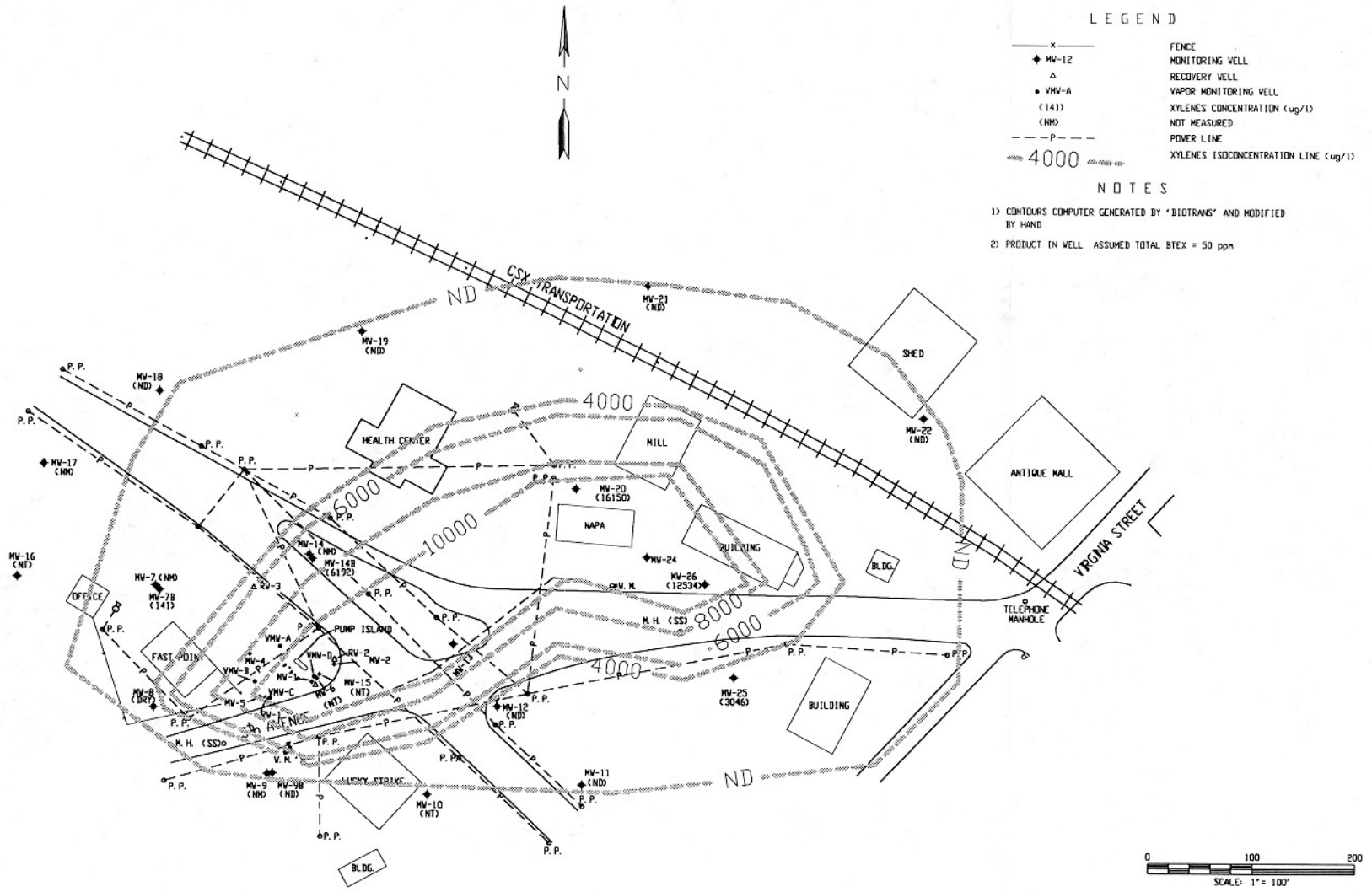
FORMER CROWN STATION SC-576
McCORMICK, S.C.

ETHYLBENZENE ISOCONCENTRATION MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 7

PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

REF: 209ethyl



PUBLICATION OR REUSE OF THESE DRAWINGS WITHIN MUST BE WITH THE WRITTEN CONSENT OF MEADE ENGINEERING AND ENVIRONMENTAL, P.C.

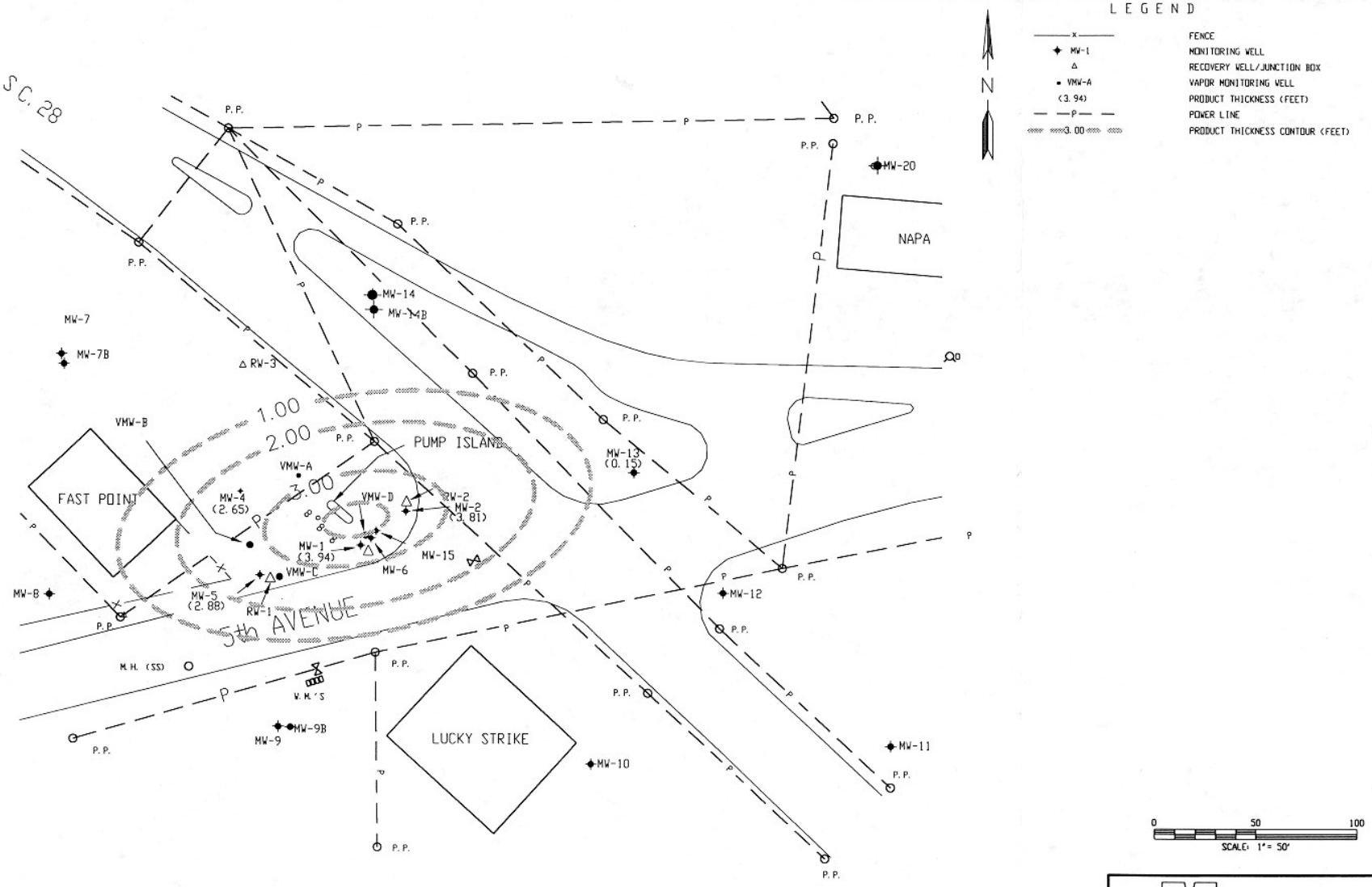
REF: 209xyl

MEADE engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

XYLENES ISOCONCENTRATION MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=100'	FIGURE: 8



REFERENCE:
Physical survey prepared by Davis & Floyd, Inc.
Dated: August 13, 1996
ACAD FILE: 209product.dwg

MEADE
engineering & environmental, P.C.

FORMER CROWN STATION SC-576
McCORMICK, S.C.

PRODUCT THICKNESS MAP
AUGUST 20, 1998

PROJ.#:209.60	DATE: 8/20/98	SCALE: 1"=50'	FIGURE: 9

SOIL SOLUTIONS

CERTIFICATE OF ACCEPTANCE

Soil Solutions, Inc. does hereby certify that 21 drums of non-hazardous contaminated material were received on 10/2/98 from:

Generator: Crown Central Petroleum

Originating at: 200 North Mine Street McCormick, SC

SSI Waste ID#: SF099839

This non-hazardous material has been accepted by Soil Solutions, Inc. and will be thermally remediated in their Soil Treatment Facility in Winston-Salem, North Carolina. Soil Solutions, Inc. guarantees the contaminated material will be treated to below regulatory standards established by the North Carolina Department of Environment and Natural Resources for clean soil.

Thomas W. Hammett

Signature

Thomas W. Hammett, Senior Vice President
Name/Title
Soil Solutions, Inc.

Date 10 / 02 / 98

1703 Vargrave Street Winston-Salem, NC 27107
(336) 725-5844 FAX (336) 725-6244

SOIL SOLUTIONS

CERTIFICATE OF DISPOSAL

Soil Solutions, Inc. does hereby certify that 4 drums of non-hazardous water was transported for disposal on 10/2/98 from:

Generator: Crown Central Petroleum

Originating at: 200 North Mine Street McCormick, SC

SSI Waste ID#: SF099839

This non-hazardous material has been disposed of by Soil Solutions, Inc. in a manner approved by the North Carolina Department of Environment and Natural Resources.

Signature

Thomas W. Hammett, Sr. Vice President
Name/Title
Soil Solutions, Inc.

Date 10 / 2 / 98

1703 Vargrave Street Winston-Salem, NC 27107
(336) 725-5844 FAX (336) 725-6244

SOIL SOLUTIONS, INCORPORATED

1703 Vargrave Street, Winston-Salem, NC 27107

NON-HAZARDOUS MATERIALS MANIFEST

Truck # **Load #** **No** 12871

GENERATOR INFORMATION

Generator: **Crown Central Petroleum** Phone: **704-398-9805**

Site Address: **200 North Mine Street**

McCormick, SC Contact: **Jerry Meade**

Material Description	Contaminant	Units	Weight Certification/Quantity
Water	**Gasoline & Diesel**	Tons Yds³ (Drums)	4

CARRIER INFORMATION

Carrier: **Soil Solutions, Incorporated** Phone: **336-725-5844**

~~1703 Vargrave Street~~

Winston-Salem, NC 27107 Contact: **Tony Disher**

As the carrier, I certify that the materials described above being shipped under this non-hazardous materials manifest are properly classified, packaged, labeled, secured, and are in proper condition for transport in commerce under the applicable regulations governing transportation, and I hereby receive this material for delivery to the facility designate.

Carrier Signature: _____ Date: 10/2/98

RECEIVER INFORMATION **SF099839**

SOIL SOLUTIONS, INC.
1703 Vargrave Street
Winston-Salem, NC 27107

SSI Project #: _____

Phone: (336) 725-5844

Contact: **TONY DISHER**

I certify that the carrier has delivered the materials described above to this facility, and I hereby accept this material for treatment and/or disposal in a manner that has been authorized by the State of North Carolina.

Facility Signature: _____ Date: 10/2/98

White/Facility Canary/Invoice Goldenrod/Generator Pink/Carrier

Soil Solutions, Inc. 1997

SOIL SOLUTIONS, INCORPORATED

1703 Vargrave Street, Winston-Salem, NC 27107

NON-HAZARDOUS MATERIALS MANIFEST

Truck # **Load #** **No** 12840

GENERATOR INFORMATION

Generator: **Crown Central Petroleum** Phone: **704-398-9805**

Site Address: **200 North Mine Street**

McCormick, SC Contact: **Jerry Meade**

Material Description	Contaminant	Units	Weight Certification/Quantity
Soil	Gasoline & Diesel	Tons / Yds³ / Drums	21

CARRIER INFORMATION

Carrier: **Soil Solutions, Incorporated** Phone: **336-725-5844**

1703 Vargrave Street

Winston-Salem, NC 27107 Contact: **Tony Disher**

As the carrier, I certify that the materials described above being shipped under this non-hazardous materials manifest are properly classified, packaged, labeled, secured, and are in proper condition for transport in commerce under the applicable regulations governing transportation, and I hereby receive this material for delivery to the facility designate.

Carrier Signature: _____ Date: 10/2/98

RECEIVER INFORMATION

SF099839

SOIL SOLUTIONS, INC.
1703 Vargrave Street
Winston-Salem, NC 27107

SSI Project #: _____

Phone: (336) 725-5844

Contact: TONY DISHER

I certify that the carrier has delivered the materials described above to this facility, and I hereby accept this material for treatment and/or disposal in a manner that has been authorized by the State of North Carolina.

Facility Signature: _____ Date: 10/2/98

White/Facility Canary/Invoice Goldenrod/Generator Pink/Carrier

Soil Solutions, Inc. 1997

O'BRIEN & GERE
ENGINEERS, INC.

RECEIVED
NOV 9 1998
DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

October 13, 1998

Mr. Jerry Meade
Meade Engineering & Environmental, P.C.
6128 Brookshire Blvd., Suite L
Charlotte, NC 28216

UST
DOCKETING

Re: Geophysical Survey Report

File: 21985 #5

Dear Jerry:

The following is a summary of the results of the geophysical survey completed at the "former Crown Station" site, McCormick, South Carolina. The purpose of the investigation was to evaluate the potential existence of former underground mine workings and other subsurface features associated with past mining activities at the site.

Background

The McCormick site is a former Fast Point Store where there has been a known release of petroleum products to the environment. The site represents approximately 16 acres in area containing various stores and businesses including the former Crown Station (now Cash Points) and a NAPA Automotive Parts business. Two areas containing a measurable thickness of petroleum free-product have been identified by previous investigators. Here, petroleum product has been identified in the groundwater at the site of the former Crown Station, and behind of the NAPA Automotive Parts Store. The relationship between these two petroleum site is not known. Various surface and subsurfaces features related to past underground and surface mining activities are known to be present in the general vicinity of site, including vertical and horizontal shafts and numerous test pits. It is possible that these types of subsurface features could affect the flow of petroleum contamination from its source. As such, knowledge of the location of subsurface mining features is important in understanding the fate and transport of the petroleum contamination known to have been released at the site.

Site Activities and Procedures

The site investigation activities were completed on August 19, 1998. The site activities consisted of the following tasks:

1. A general walkover of the site to identify possible interferences and obstacles to the completion of the geophysical survey.

2. A cross-check of the geophysical equipment to assure that all components were working in accordance with the manufacture's specifications.

O'Brien & Gere Engineers, Inc., an O'Brien & Gere company
1015 Aviation Parkway/ Suite 700 / Morrisville, NC 27560
(919) 469-0099 / FAX (919) 469-9967 • http.// www obg com
and offices in major U S cities

3. Establishment of survey grid and profile lines in respect to existing physical features such as roads, buildings and utilities.

4. A debriefing with the project manager (Mr. Jerry Meade) confirming the purpose of the geophysical survey.

5. Collection of variable frequency electromagnetic profile data utilizing two model GEM-300 profile units manufactured by Geophysical Survey Systems, Inc. (GSSI).

6. Transfer of data from the GEM-300 to a portable laptop computer and preliminary reduction of data in the field to assure data being collected is reasonable, and the two GEM-300 units were working properly.

All additional data reduction and review was conducted in the office where final maps and data presentation were completed. The office activities included:

1. Construction of site geophysical base map which illustrates the location of each data station with respect to profile line and existing land features. An electronic version of a site base map depicting the location of buildings, roads, and utilities was provided by Meade Engineering & Environmental (Meade).

2. An arbitrary coordinate system was assigned to the map, and the beginning and end of each geophysical profile was located. These data were transferred to a data base containing the geophysical survey data.

3. Inspection and reconciliation of all data points to assure proper location and values.

4. Upon completion of all data reduction, checking and re-checking, the data was processed through a computer contouring software package (Surfer, produced by Golden Software, Golden Colorado). The results of this processing is a color rendition illustrating the distribution of various electromagnetic parameters with respect to the site map.

Finally, a geophysical interpretation of the results is presented below, and is based on the known site conditions and the observed electromagnetic patterns. For the benefit of the reader, O'Brien & Gere has presented below a brief description of the theory of operation of the GEM-300.

Explanation of the theory of Operation

The GEM-300 is an active electromagnetic induction sensor. The functional components of the system are a Transmitter Coil (Tx), a Receiver Coil (Rx), and Bucking Coil (Bx) and the Control Electronics. The fundamental principle of a frequency-domain electromagnetic induction (EMI) system involves the measurement of the change in mutual impedance/inductance between a pair of coils moving over the earth's surface. The Transmitter Coil generates a sinusoidally-varying primary field, which induces the flow of a

system of currents within the earth below. This induced current, in turn, generates a secondary magnetic field that is measured by a Receiver Coil.

When two coils are maximally coupled (in the GEM-300 the coils are horizontal co-planar), the magnitude of the primary field generated by the Tx coil, as sensed by the receiver, is very large compared to the magnitude of the secondary field generated by induced current flow in the ground. This secondary field is difficult to measure in the presence of the large source field. Solutions to this problem include: (1) moving the receiver away from the source to reduce the magnitude of the primary field, or (2) increasing the dynamic range of the receiver electronics. In the past, most commercial EMI systems have utilized the former method.

The GEM-300, however utilizes a secondary receiver or bucking coil, to remove the source field influence at the Rx coil. The Bx coil is configured so that its induced voltage from the primary field in the absence of the earth (i.e., in free space is equal to that induced in the Rx coil. The Bx and Rx coils are wired in opposing (or bucking) polarity. This effectively cancels out the primary field generated by the Tx coil and thus, the sensor unit produces a zero output in free space. This "bucking" design is not new or unique to the GEM-300 and has been utilized for many years, principally on airborne EMI "Birds" used for large scale mining investigations.

The secondary field detected by the sensor is then split into In-phase and Quadrature components which are expressed in parts per million (ppm) against the primary field strength that would have been induced in an un-bucked receiver coil. In-phase refers to the part of the received signal that is in-phase with the Tx signal. Quadrature refers to the part of the signal that is 90 degrees out of phase with the Tx signal. Historically, the in-phase response will be large when the target is a metal conductor and, hence, is referred to as the metal detector mode. The Quadrature phase response will be large for non-metallic conductors and , therefore, referred to as the conductivity mode. Finally, the Quadrature component is used to estimate the bulk conductivity of the underlying earth. In this case the conductivity is expressed as mS/M (millisimens per meter).

For this geophysical investigation data from three electromagnetic frequencies was collected (330 Hz, 2550 Hz, and 19950 Hz). These electromagnetic frequencies were selected to provide a wide range of probing depth. The highest frequency (19950 Hz) generally measures responses to just a few meters below the surface, while the mid-range frequency (2550 Hz) probes from zero to approximately 30 feet in depth. The lowest frequency (330 Hz) can probe to depths of 30 meters, depending upon the type of material being investigated.

Site Geology

Rocks with the McCormick area are mapped as part of the Carolina Slate Belt of Precambrian to Cambrian in age. Here, the Persimmon Fork Formation is characterized by a regionally distinctive sequence of greenschist facies metavolcanic and metasedimentary rocks.

The "Former Crown Station" is located along the regional gold bearing trend and just south of the former Dorn Mine from which small quantities of gold (with associated silver, zinc, copper and lead) were mined during

the 1850s and 1930s. A description of this mine is provided by Pardee and Park (1948), U.S. Geological Survey Professional Paper 213 (see Figure 31, contained in Appendix A). Figure 31 shows that the Dorn Mine extends northeast-southwest over a linear distance of 3000 ft with at least four shafts known. Shaft No. 2, the only workings with some survey data, was sunk to a depth of 185 ft with at least 675 ft of mine and exploration drifts from the 175 ft level. The amount or location of other underground workings related to the other shafts is unknown.

The "Former Crown Station" is located about 1000 ft south of the southernmost mine shaft shown in Figure 31 (Appendix A) and shows only shallow pits present near the "Former Crown Station" and within the known area of ground water contamination. Therefore, it is possible, but unlikely, that underground workings are present beneath or within 500 ft of the "Former Crown Station" and associated area of contamination.

As described by Park and Pardee (1948), rocks at the Dorn Mine consist of variably silicified quartz sericite chlorite schist. These rocks trend north-northeast and dip steeply to the northeast to vertical. Sulfide bearing minerals, which host the gold at the Dorn Mine, occur as thin, discontinuous stringers and lenses. The oxidized sulfide rock extends to a depth of 50 to 60 ft.

Rocks presently exposed in cropping near the "Former Crown Station" are moderately silicified, highly sheared, quartz sericite schist that exhibit a strong N 70° to N 80° cleavage that dips steeply to the northwest. Minor iron oxides along fractures suggest an original sulfide content of less than one percent. The contaminated ground water plume is aligned northeast of the "Former Crown Station", parallel to the local trend of the rock cleavage.

Results

The location of the 105 variable frequency electromagnetic profiles collected during the investigation is presented in Figure 1. Here, the area investigated was sufficient to establish several important geophysical observations:

- Variations in the in-phase and Quadrature electromagnetic modes, and bulk rock conductivity values have been observed. Although not confirmed at this location, changes in bulk rock conductivity is generally indicative of changes in the porosity of the rock. In this case, magenta and blue colors indicate less conductive material (less porosity) and yellows and reds indicate more conductive (greater porosity) rocks (Figures 2, 3, and 4). Rock porosity may be a result of primary means of rock formation and is a reflection of original grain size, or by secondary methods which is generally a result of fracturing, weathering, or geochemical changes.

- An area of generally low conductivity is associated with observed outcrops of silicious quartz sericite schist mentioned by others (Pardee and Park, 1948) and is located directly southwest of the Fast Point Store and adjacent office building. This trend is broken by an area of higher conductivity situated beneath the health care facility and NAPA Automotive Supply Store. To the north of the NAPA store, the area is characterized by moderate to low conductivity. This observed trend is most evident in the

high to moderate frequencies shown in Figures 2 and 3 (19950 and 2550 Hz) and less obvious in the lowest frequency as shown in Figure 4 (330 Hz).

- By comparing in-phase and Quadrature mode data it is possible to identify metallic verses non-metallic positive anomalies. For example, in Figure 2, the in-phase diagram shows a very strong positive anomaly northwest of the Fast Point Store. In contrast, the Quadrature mode at the same frequency has a very weak anomaly present at the same location. In this case several automobiles were observed at this location. Using this same comparison strategy, a strong non-metallic anomaly is present immediately south of the small office building located west of the Fast Point Store. In addition, a strong, but small, anomaly is located immediately south of the "old mill" and in the vicinity of what appears to be a dug well.

Conclusions

Based on a detailed geophysical survey across the 'Former Crown Station" site, no underground workings were recognized in the vicinity of the known petroleum releases.. However two unexplained features remain:

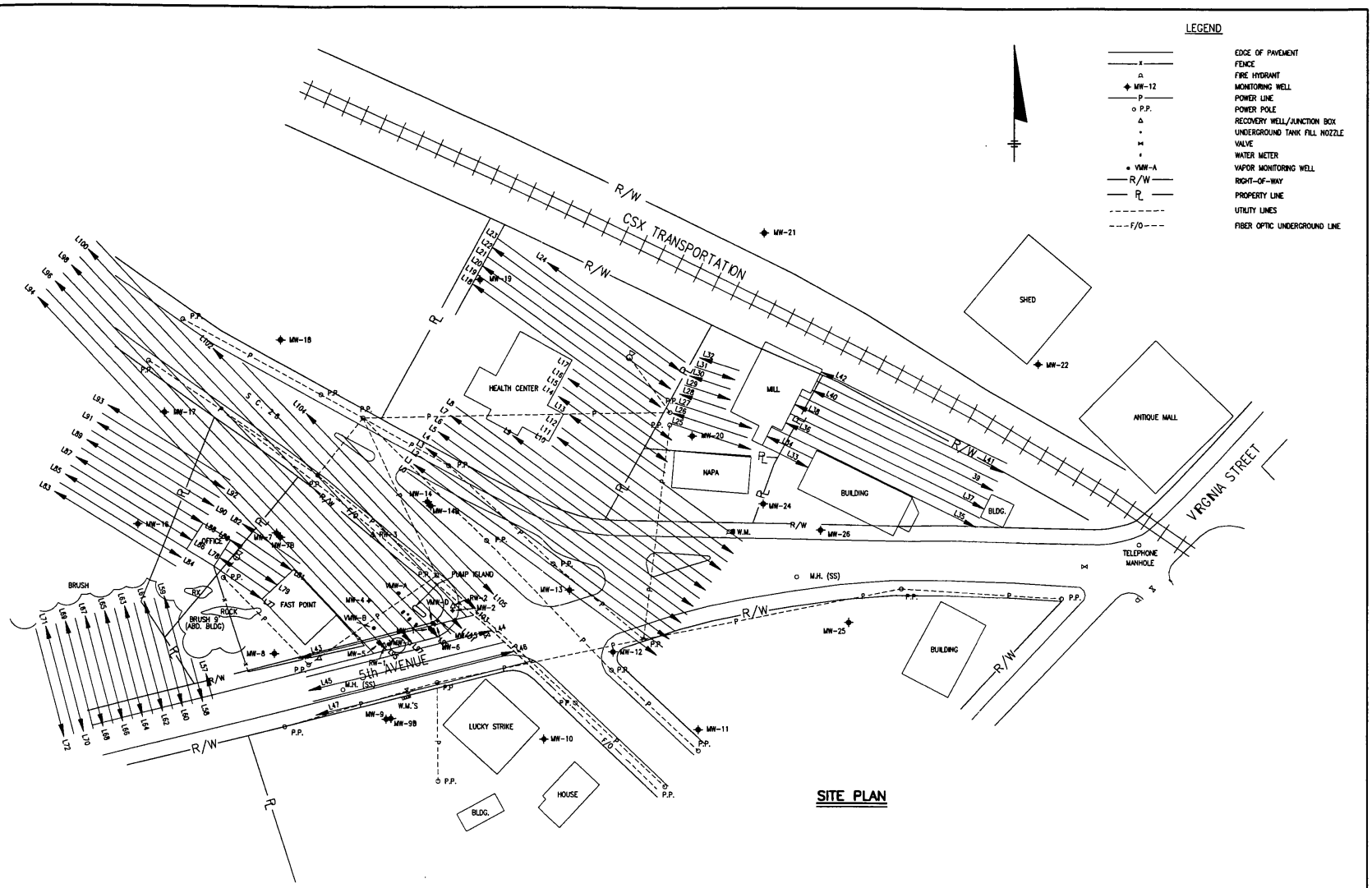
- A strong, but small, negative anomaly is present south of the "Old Mill".
- A second, but much larger, negative anomaly is present south of the small office building located west of the Fast Point Store.
- The presence of well developed bedding cleavage described by Pardee and Park (1948) provides a possible pathway for the migration of free-phased petroleum product from the former Crown Station to the affected area near the NAPA Automotive Parts Store.

Please give me a call should you have any questions concerning the above information.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Ronald A. Crowson, P.G., PhD
Managing Scientist



SITE PLAN

NOTES:
1) Property lines and Right-of-Way lines were obtained from tax map/aerial photo overlay McCormick 126-05 and 45065 277 113-x5, repectively. Boundary lines were not verified by a surveyor

IN CHARGE OF

DESIGNED	DRAWN	CHECKED
RC	DL	RC

1"=50' (50 0 50 100)

PREPARED FOR: MEADE engineering & environmental, P.C.

PREPARED BY: O'BRIEN & GERE ENGINEERS INC.

NO.	DATE	REVISIONS	INIT

VARIABLE FREQUENCY
ELECTROMAGNETIC
PROFILER SURVEY
FORMER CROWN STATION SC-57
McCORMICK, SC

DATE: 10/13/98

FILE NO. 10134.21985.001.180

1

IT IS A VIOLATION OF LAW FOR ANY PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER TO ALTER THIS DOCUMENT.

RALEIGH, NC - I:\RALEIGH\PROJECTS\10134\21985\DWGS\001.DWG

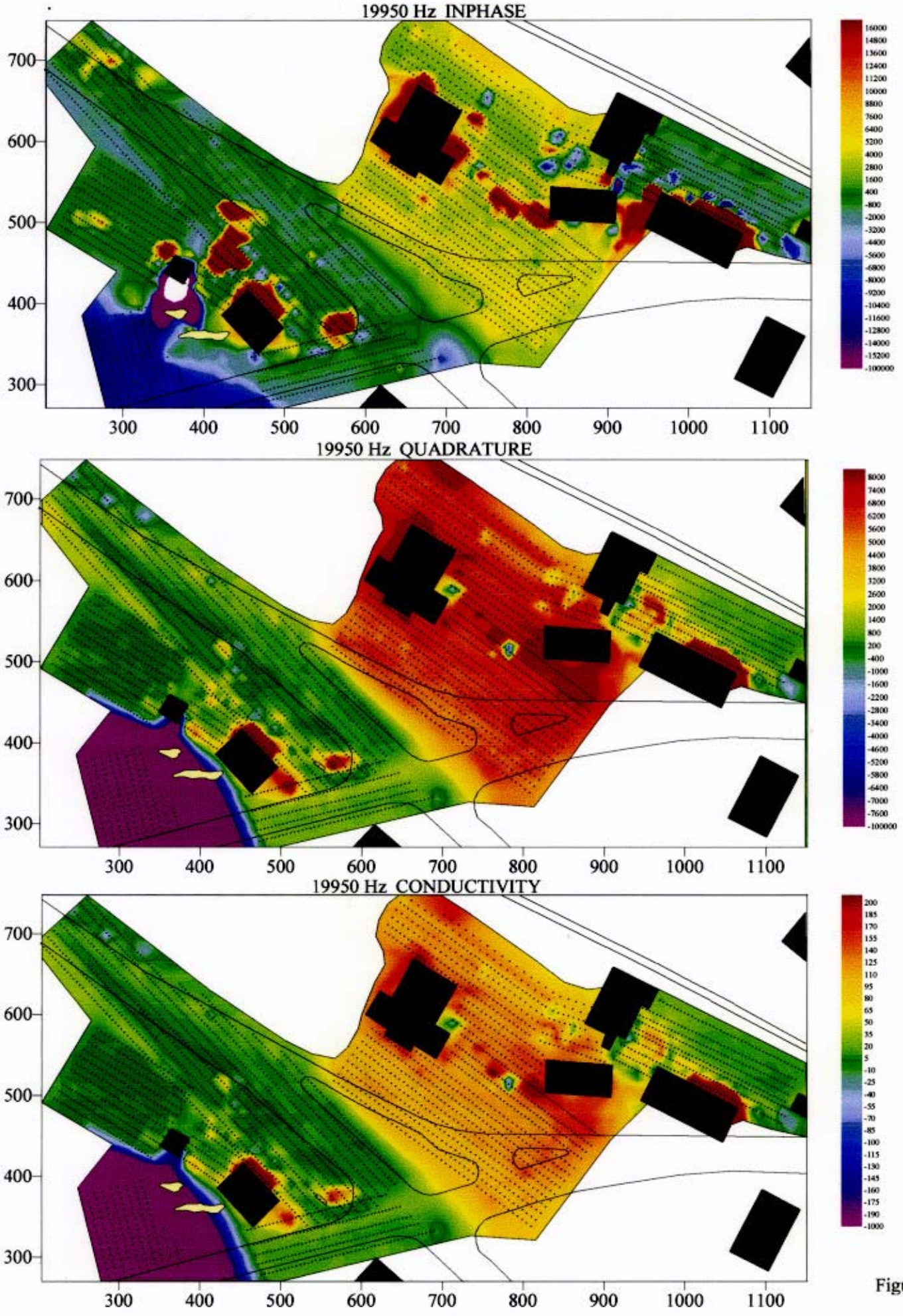

19950 Hz INPHASE
16000
14800
13600
12400
11200
10000
8800
7600
6400
5200
4000
2800
1600
400
-800
-2000
-3200
-4400
-5600
-6800
-8000
-9200
-10400
-11600
-12800
-14000
-15200
-100000
700
600
500
400
300
300
400
500
600
700
800
900
1000
1100
19950 Hz QUADRATURE
8000
7400
6800
6200
5600
5000
4400
3800
3200
2600
2000
1400
800
200
-400
-1000
-1600
-2200
-2800
-3400
-4000
-4600
-5200
-5800
-6400
-7000
-7600
-100000
700
600
500
400
300
300
400
500
600
700
800
900
1000
1100
19950 Hz CONDUCTIVITY
200
185
170
155
140
125
110
95
80
65
50
35
20
5
-10
-25
-40
-55
-70
-85
-100
-115
-130
-145
-160
-175
-190
-1000
700
600
500
400
300
300
400
500
600
700
800
900
1000
1100

Figure 2

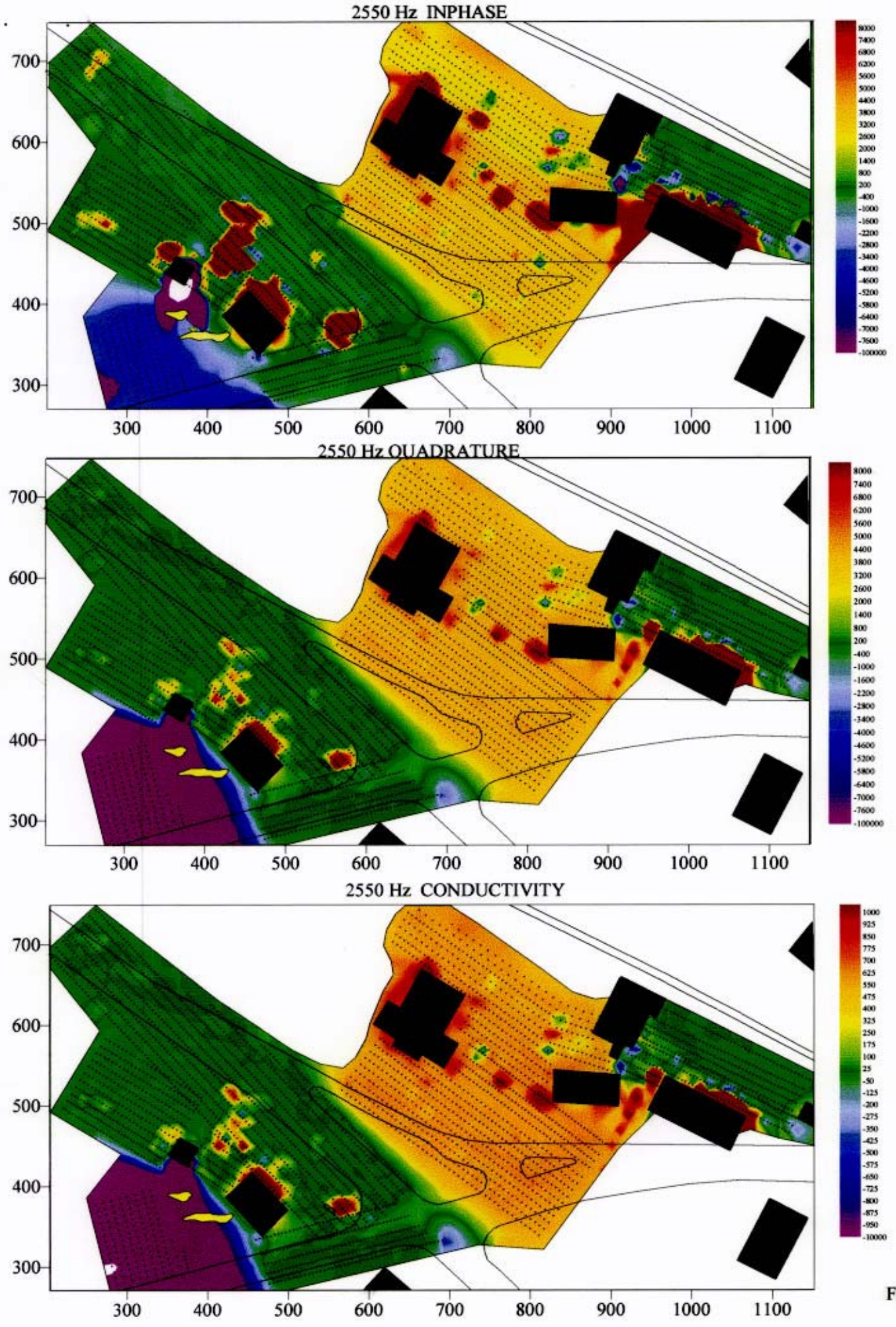

2550 Hz INPHASE
2550 Hz QUADRATURE
2550 Hz CONDUCTIVITY
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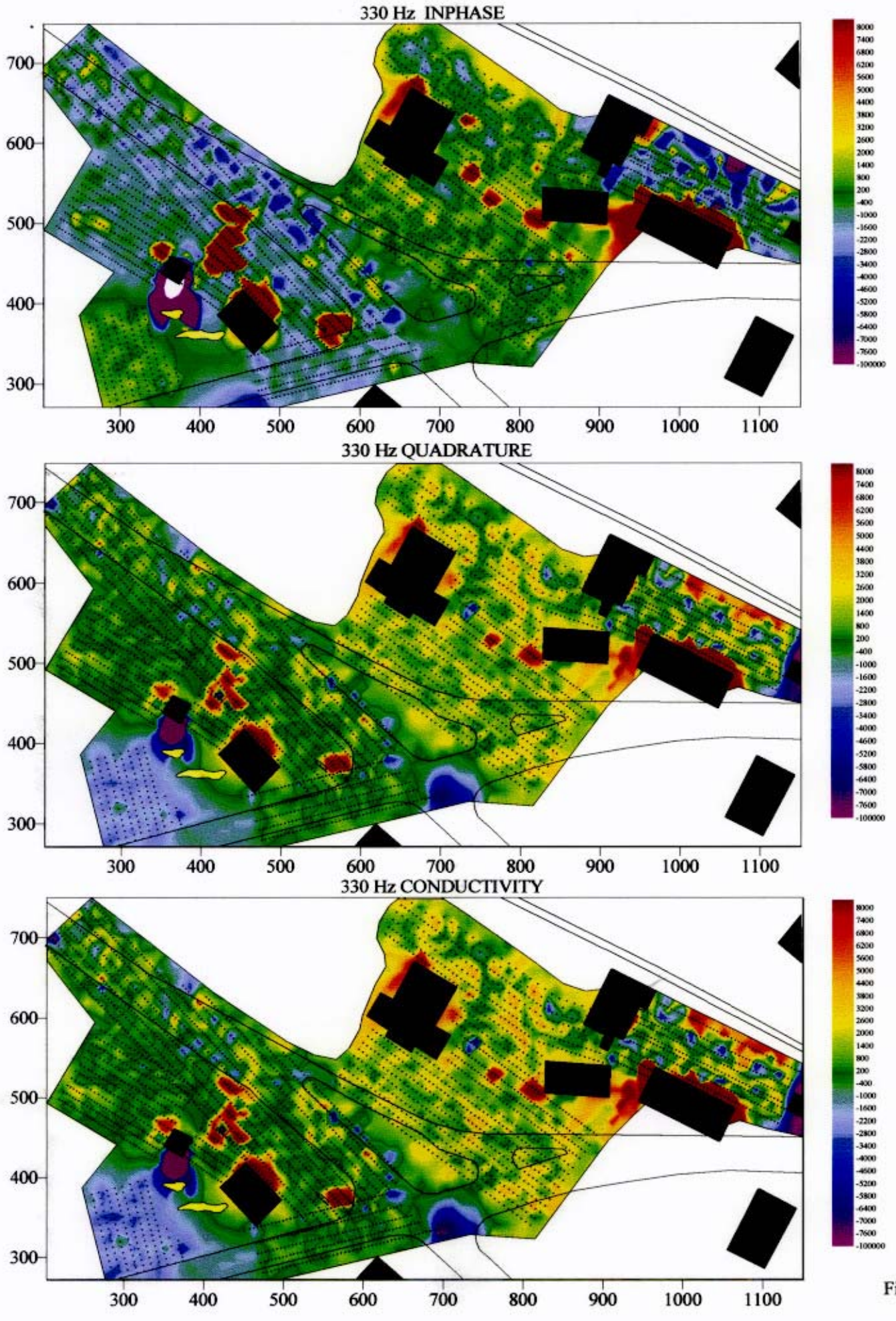
Figure 3


330 Hz INPHASE
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700
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1100
8000
7400
6800
6200
5600
5000
4400
3800
3200
2600
2000
1400
800
200
-400
-1000
-1600
-2200
-2800
-3400
-4000
-4600
-5200
-5800
-6400
-7000
-7600
-100000

Figure 4

tion. The reported yield of these bodies, to a depth 100 feet where they pinched out, was 8,500 tons. rill holes indicate that pyrite is generally present in bundance in the unworked parts of the Haile zone. In northeastern part of the Beguelin zone, dumps at shafts on Chase Hill show much pyrite. Certain yers of schist from 20 to at least 50 feet in width are d to contain 20 percent or more of disseminated py-. These pyritic deposits are reported to be low in d, and the pyrite grains are so small that some difficulty was experienced in concentrating them.

BARREN QUARTZ VEINS

Veins of coarse-grained barren white quartz are ttered through the area surrounding the Haile mine pl. 37). They trend northeastward as a rule, and ge in size from stringers to bodies 50 feet or more width and several hundred feet long. One exposed in Bumalo pit dips steeply northwest, cutting the foli-n and the ore body at an acute angle. Some of the ins are lightly stained with iron oxides, and in one of n a little coarse pyrite was observed. As indicated he one at the Bumalo pit, these barren veins are r than the ore bodies.

COMPOSITION OF MINE WATERS

he Haile and the Bumalo pits are filled to the local nage level with water of a deep reddish-brown lor, which has a strongly acid taste that is due to ferric te in solution. A sample taken from the Bumalo n April 1935 was examined in the Geological Sury laboratory, with the following results:

osition of water from Bumalo pit, Haile mine, South Carolina[1]

[R. C. Wells, analyst]

Reaction to litmus	Strongly acid
Free chlorine	Not detected
Free sulfuric acid (H_2SO_4)	None[2]
Chlorine (Cl) in chlorides	0.010 gram per liter
Iron (Fe)	0.035 gram per liter

copper, selenium, or tellurium was detected.
ie acid reaction is due to ferric sulfate. No ferrous sulfate is ent.

fore it was pumped out, the Beguelin pit was filled erflowing with water of a pale bluish-green tint, ich apparently was due to algae or other plants. A le collected in April 1935, when the pit had been half emptied, gave a very slight alkaline reaction tested in the Geological Survey laboratory. It tained 0.011 gram per liter of chlorine in the form oride, but no free chlorine, free sulfuric acid, iron, r, selenium, or tellurium.

ORIGIN

Haile ore bodies appear to have been formed placement along groups of closely spaced fractures had the same or nearly the same strike and dip as the foliation of the schist. The dominant rock structure doubtless influenced the direction of the fractures, but did not control it entirely, for, as shown in the Beguelin pit (fig. 30), some of the fractures break across the foliation.

The writers of this report regard these deposits as of hydrothermal origin and probably related to intrusive granite, such as that exposed a short distance to the northeast. Previous workers believed that the diabase dikes were the source of the ore bodies or had enriched them. It is now known, however, that the dikes are younger than the lodes, so that their association with the lodes is merely accidental and any changes they may have caused in the lodes are indirect.

At the Haile mine, as elsewhere in the region, the ore was rich at the surface and, except perhaps for some narrow bands or stringers, became leaner with increasing depth. Apparently during the process of weathering, the upper parts of the lodes were enriched with gold from the parts that had been worn away. The enriched zone consists of completely disintegrated material at the top, which was worked as a placer. Next below was oxidized "free milling" ore and under that was sulfide ore, which may have been somewhat enriched with native gold carried down in solution. The dikes may have helped the process of oxidation and enrichment by affording waterways along their margins.

RESERVES

In May 1935 a face of ore about 30 feet wide was exposed in the northeast end of the New Beguelin pit. Other dimensions of the ore body were not definitely shown. Available information indicates, however, that ore probably forms a large part of the block of ground remaining between the New Beguelin and Beguelin pits, and that it extends to a depth comparable to that of adjacent bodies already mined, namely 150 feet or more. Ore was said to have been penetrated southwest of the New Beguelin pit by several drill holes and by the drift extending 200 feet beyond the pit in that direction. It is also possible that new ore bodies may be found near the surface beyond the points at which the mineralized zones pass under the cover of Coastal Plain sediments.

It appears probable that in the aggregate a very large amount of gold-bearing material remains in the zones described, both within the depths reached by the workings and below. What parts of this material are workable remains to be determined by drilling or other exploratory work.

McCORMICK COUNTY

DORN

The Dorn mine, which is in the western and northwestern parts of McCormick, is on a mineralized zone that trends northeast in sericite schist. The workings (fig. 31) extend northeast-southwest over a linear dis-

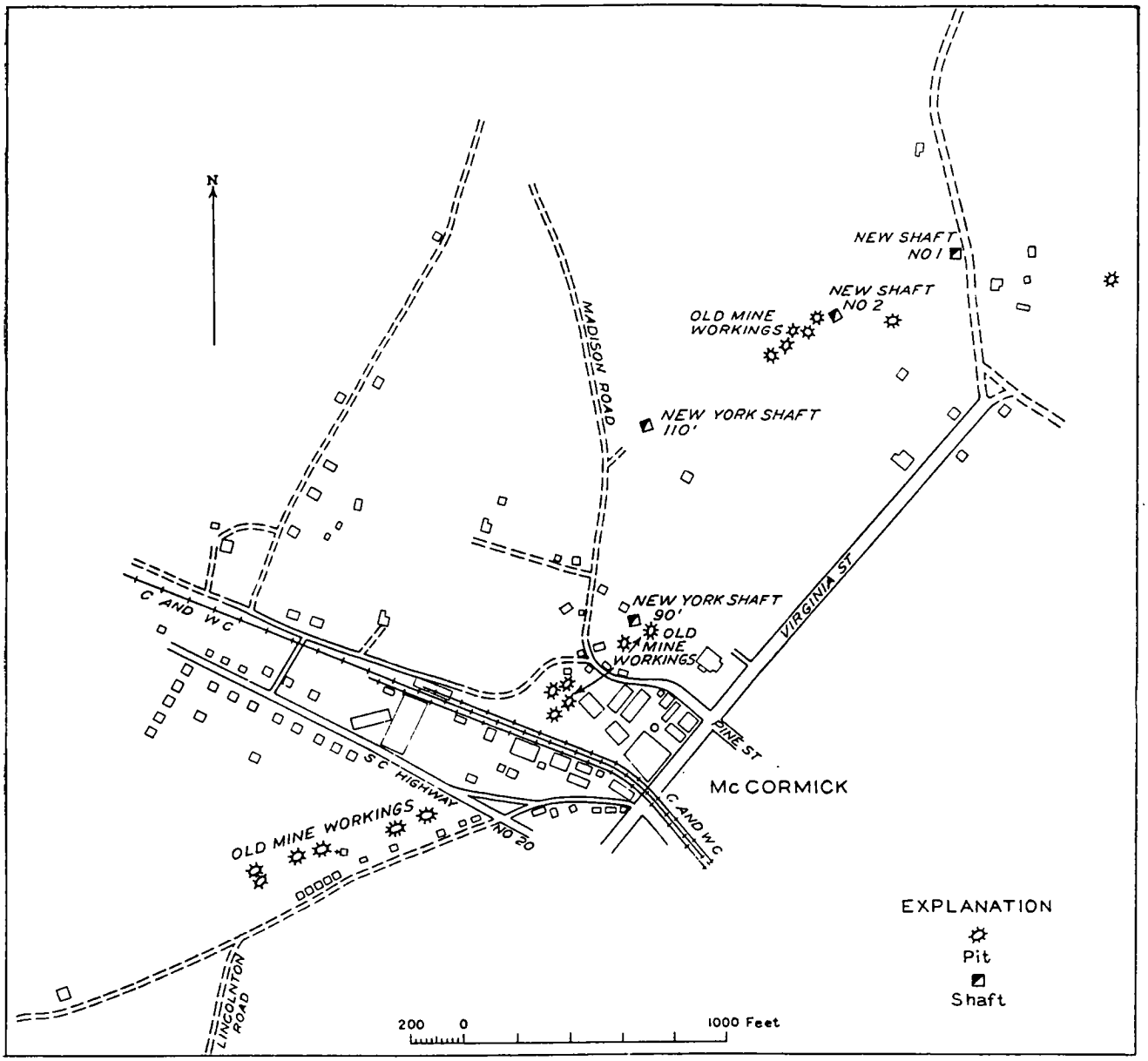

FIGURE 31.—Plan of surface workings, Dorn Mine, McCormick, McCormick County, S. C.

tance of about 3,000 feet, the most extensive being just west and north of the business section of the town. The mine is described in the following reports, of which Lieber's provides the most of the early history.

1853. Mining Mag., vol. 1, p. 513, Whitney, J. D., The metallic wealth of the United States, p. 133, 1853.

1854. Mining Mag., vol. 2, p. 309.

1860. Lieber, O. M., Survey of South Carolina, 4th Ann. Rept., pp. 73–86.

1867. Taylor, J. W., Gold mines east of the Rocky Mountains, 39th Cong., 2d sess., H. Ex. Doc. 92.

1897. Nitze, H. B. C., and Wilkens, H. A. J., Gold mining in North Carolina: North Carolina Geol. Survey Bull. 10, p. 77.

1908. Sloan, Earle, Mineral localities of South Carolina: South Carolina Geol. Survey, Series IV, Bull. 2, pp. 25–27.

After doing considerable work that appears to have been unsuccessful, Dorn, the original owner of the property, struck a body of rich ore in February 1852 in ground now penetrated by the southwestern part of the workings. It is said that by the end of June 1853, $300,000 worth of gold had been mined from an excavation a little over 300 feet long, 12 feet deep, and 15 feet wide, and that the expense of removing the ore and recovering the gold was only $1,200. The ore was worked at the rate of 15 bushels a day, in a Chilean mill driven by 2 mules.

Apart from this spectacular 15-month period of high production and the much less successful efforts made for a number of years thereafter, the Dorn mine has seen

little activity. Mint returns from South Carolina umped from $19,000 in 1850 to $126,982 in 1852, after which they abruptly declined. Lieber reported a yield from the Dorn mine of $72,000 in the 2 years ending January 1, 1859. The mine was dormant from about 880 until 1932. Common report puts the total production at $900,000.

The development work done in 1932 and afterward was carried on by the North American Gold Mines, Inc., under the direction of H. W. Ingalls. Operations were confined to the extreme northeast part of the zone, where the No. 2 shaft was sunk to a depth of 185 feet, including a 10-foot sump. A working level was turned at a depth of 175 feet, and about 675 feet of drifts and crosscuts had been driven at the time the mine was examined (see fig. 32).

Outcrops in and about the old workings show only sericite schist. As exposed by later crosscuts to a width of 50 feet or more, the country rock also includes a dikelike body of basic intrusive rock 10 feet thick, and a zone 16 feet wide of light-gray rock containing knotlike grains of quartz and feldspar, called "birdseye porphyry" by the miners. With the exception of a basic dike, 4 feet thick, cut by the south crosscut 60 feet from its intersection with the main drift, the country rock of the mine is white, light-gray, and very light green sericite-chlorite schist, the chlorite being subordinate. Extremely fine-grained secondary quartz is widespread but only moderately abundant, and there is much disseminated pyrite.

Lieber describes the schists as highly silicified, but that is by no means the case in the subsurface exposures the newer workings. The vein is said to have had a strike of N. 78° E., and to have widened from 18 inches at the surface to 14 feet at a depth of 10 feet below the water level. Lieber discusses and sketches faults whose displacement he evidently thought to be horizontal, but such faults are not to be found in any accessible workings. Faulting was probably invoked by Lieber to explain offset zones of ore in the old workings; the distribution of the surface workings indicates a lode separated into three sections, offset with respect to one another but not necessarily by faulting. The ore bodies that were mined are described as dikelike in form, 8 to 10 feet in diameter, and arranged in overlapping fashion. Although the ore bodies are popularly called "pikes," all descriptions, particularly Lieber's, indicate a lenticular type of lode. Oxidized ore extended to a depth of 50 or 60 feet, and fine-grained quartz was present in the richer material. Lieber mentions both glassy vein quartz and granular quartz, but neither was found in the newer workings. Below the weathered ore lies a layer of rich copper sulfide.

Drifts on the 175-foot level explore a lode made up of stringers, which are a foot or more in aggregate thickness but are distributed through a 5-foot width of the schist lying next to the basic dike. These stringers are composed almost entirely of galena, sphalerite, and chalcopyrite, which together form a loosely coherent mass. The sulfides tend to replace the chloritic schist selectively. An engineer employed by the company reported that samples from the sulfide veins, representing aggregate widths of 4 to 15 inches, contained in round figures from 6 to 12 percent of lead, 25 to 40 percent of zinc, 2 to 3 percent of copper, 13 to 17 ounces of silver, and 1 ounce of gold to the ton. At one place a body of later barren quartz is exposed next to the sulfide veins, but its relation to them appears to be merely accidental.

Northeast and east of the main lode are outcrops of a lode rich in manganese oxides and a pit from which considerable manganese ore was mined during World War I. Lieber mentions the common occurrence of psilomelane and pyrolusite, both of which interfered with amalgamation. He says that the "manganese vein" can be traced to the Savannah River, and he was told that it could be traced across the river.

YORK COUNTY

BAR KAT

During parts of 1933 and 1934 development work was done by the Bar Kat Mining Co., under the direction of J. R. Elmendorf, on a group of gold-bearing quartz veins in York and Cherokee Counties, about 3 miles west of Smyrna.

The property contains at least eight veins, which trend northeastward nearly parallel to the structure of the country rock (see fig. 33). No records of the mine's production are known to exist, but the extent of the old workings suggests that a considerable amount of gold may have been recovered from the weathered zone.

Workings made by the Bar Kat Co. include a shaft 200 feet deep and two tunnels respectively 150 and 300 feet long (fig. 34). As shown by open-cuts and pits, individual veins persist along the strike for at least 100 to 200 feet each and range from 1 to 4 feet or more in width. Six of them are arranged in pairs spaced 40 or 50 feet apart. One pair is about 200 feet southeast and a second about 100 feet northwest of the shaft; the third pair begins about 200 feet north of the shaft. A fault striking northwest may have cut the third pair off from one of the others and shifted it relatively to the northwest, for a line passing about 100 feet northeast of the shaft marks the northeast end of the first two pairs and the southwest end of the third. In addition, a vein is exposed beyond Beech Branch about 1,000 feet south of the shaft, and still another about 400 feet north of it.

A level driven southeast from the shaft cuts a small quartz vein, not recognized at the surface, containing

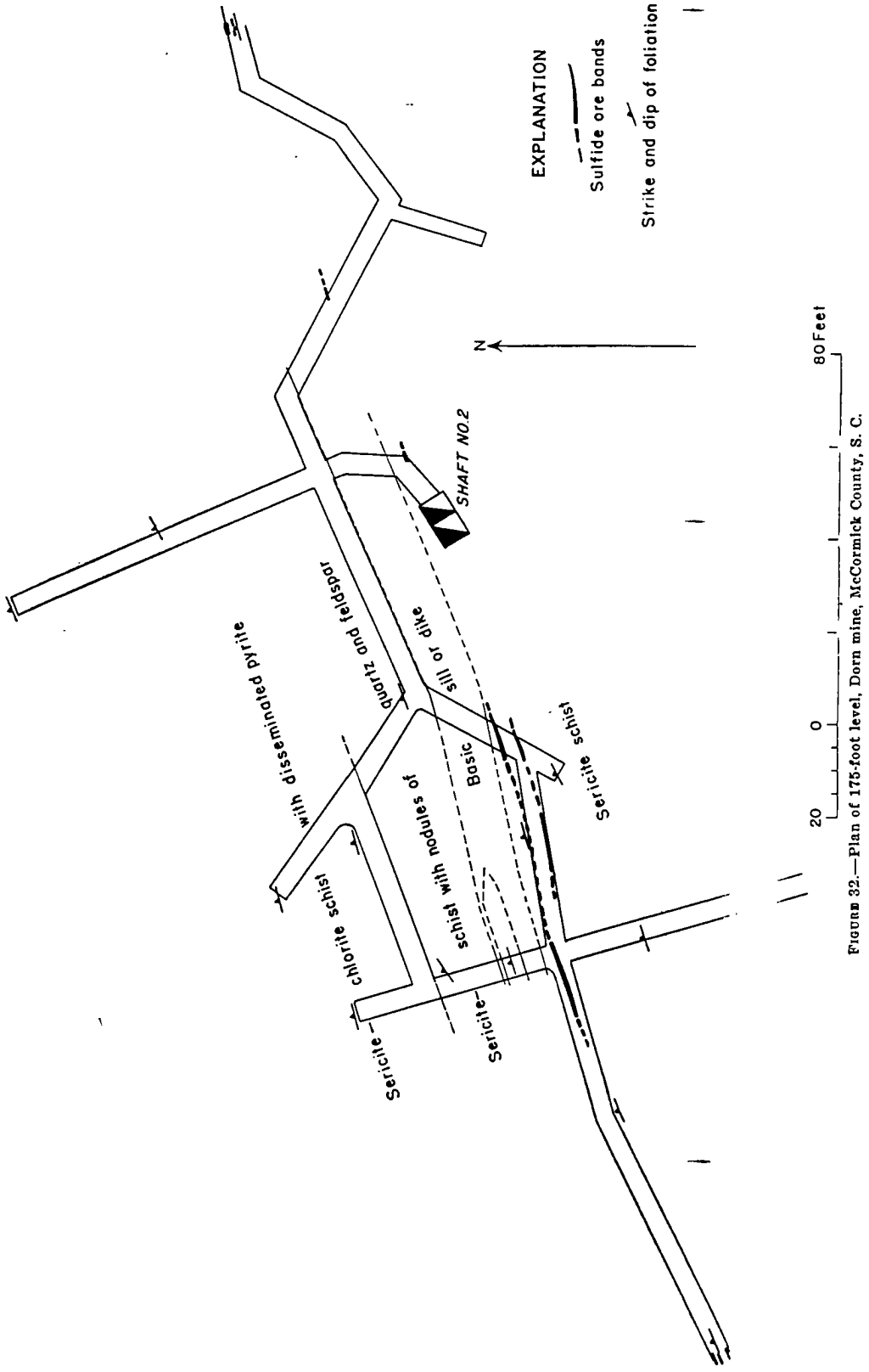

FIGURE 32.—Plan of 175-foot level, Dorn mine, McCormick County, S. C.

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11/1/2001

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443
EMS Job No. 2125-036

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443

Prepared For:

Crown Central Petroleum Corporation
8227 Cloverleaf Drive, Suite 304
Millersville, Maryland 21108

Prepared By:

Earth Management Systems, Inc.
3025 McNaughton Drive
Columbia, South Carolina 29203

Date:

October 31, 2001

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

Peter J. Reinhart, P.G., C.H.M.M.
Senior Hydrogeologist
SC Registration No. 424

INTRODUCTION

Earth Management Systems, Inc. (EMS) has completed the ground water sampling and analysis at the Former Crown SC-576 facility, 201 US Highway 28 and 32, McCormick, South Carolina. A site location map is included as Figure 1. This work was performed in accordance with SCDHEC Cost Proposal No. 14500. The purpose of the sampling was to evaluate the current ground water quality conditions in response to a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site and to evaluate the potential for intrinsic remediation as a viable corrective action for this site.

This report includes a brief summary of the field methods utilized along with results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

GROUND WATER OCCURRENCE AND FLOW DIRECTION

Water level measurements were recorded at the site monitoring wells on September 19, 2001. A total of nine monitoring wells could not be gauged; seven of the wells were dry (MW-4, MW-8, MW-10, MW-11, MW-12, MW-13, and MW-20), and two monitoring wells (MW-17 and MW-18) could not be located. Ground water elevations were determined by subtracting the depth to water, which was measured using an oil/water interface probe, from previously surveyed elevations at each well. Three of the wells (MW-1, MW-2, and MW-5) contained free-product ranging in thickness from 0. 61 ft. to 2.02 ft. Ground water elevation and free product thickness data are presented in Table 1.

A potentiometric surface map of the water table aquifer is included as Figure 3. Inspection of Figure 3 indicates the ground water flow direction in the water table aquifer to be radially toward the northeast to east-southeast, with a hydraulic gradient of approximately 0.026 ft./ft. Ground water elevations are significantly lower than the elevations recorded during the previously recorded event, resulting in a greater number of dry wells.

GROUND WATER SAMPLING AND LABORATORY DATA

Ground water samples were collected from 10 of the 24 site monitoring wells on September 25, 2001. No samples were collected from 14 of the previously sampled wells duc to regarding dry, lost, wells containing free product, or wells which did not contain a sufficient amount of water to sample (MW-19). The samples were obtained from the monitoring wells with dedicated sampling equipment and surgical gloves to prevent cross-contamination between wells. A minimum of three well water volumes was purged from each of the wells, or the wells were purged to dryness prior to sampling. Purge water generated during sampling of impacted wells was placed in two labeled 55-gallon drums and subsequently picked up and disposed of by G&K Tank Services, of Sumter, South Carolina. A waste disposal manifest is included in the Appendix.

PETROLEUM-RELATED COMPOUNDS

Ground water samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), naphthalene, 1,3,5 trimethylbenzene (TMB), 1,2-dibromomethane (EDB) and naphthalene per Environmental Protection Agency (EPA) Method 8260, polynuclear aromatic hydrocarbons (PAHs) per EPA Method 8270C along with total lead, methane, nitrate, sulfate, and ferrous iron. All samples were placed in laboratory prepared containers with a completed chain of custody log, packed in a cooler filled with ice, and shipped to a South Carolina certified laboratory for chemical analysis. A summary of ground water quality data collected for this assessment is provided as Table 2. A copy of the laboratory report and the ground water sampling Field Data Information Sheets are included in the Appendix.

Free product was detected in three monitoring wells located adjacent to the former UST area, on-site. Inspection of the laboratory data indicate the presence of dissolved hydrocarbon compounds at concentrations above Risk Based Screening Levels (RBSLs) in monitoring wells MW-6, MW-14B, and MW-26. Inspection of the previously water quality indicates some of the monitoring wells which could not be sampled as a part of this sampling event (MW-13 and MW-20) likely contain hydrocarbon concentrations above RBSLs. A Total BTEX concentration map illustrating the current distribution of hydrocarbon compounds based on the above data is included as Figure 4. The dissolved hydrocarbon plume is estimated to be approximately 1,200 feet long and 60 feet wide at the source area tapering to

approximately 30 feet wide at the downgradient edge. Additionally, a significant concentration of total lead (7.97 mg/l) was detected in monitoring well MW-22, located downgradient from the site.

NATURAL ATTENUATION INDICATOR PARAMETERS

Ground water samples were analyzed for nitrate, sulfate, ferrous iron, and methane. These parameters provide evidence of the aquifer's ability to naturally remediate the hydrocarbons present. A summary of the natural attenuation indicator parameter data collected to date is provided as Table 3. No trends regarding the assimilative capacity of the aquifer could be established from this single data set.

CONCLUSIONS AND RECOMMENDATIONS

The results of this comprehensive sampling and analysis indicate that the horizontal extent of the hydrocarbon plume has not been defined by the monitoring well network. Free product exists in site monitoring wells and product removal from these wells should be performed as soon as possible. Based on the existing site conditions, a Tier II Assessment is recommended to be performed at this site in order to evaluate the extent of impact and to evaluate the potential risk of human exposure to the contaminants identified.

LIMITATIONS

This report has been prepared for the exclusive use of Crown Central Petroleum for specific application to the Former Crown SC-576 facility – 201 Highway 28 and 32 in McCormick, South Carolina. Our findings have been developed in accordance with generally accepted standards of geology and hydrogeology practice in South Carolina. No other warranty is expressed or implied. We accept no responsibility for damages or claims resulting from past or future contamination, or subsequent remediation.

APPENDIX

FIGURES

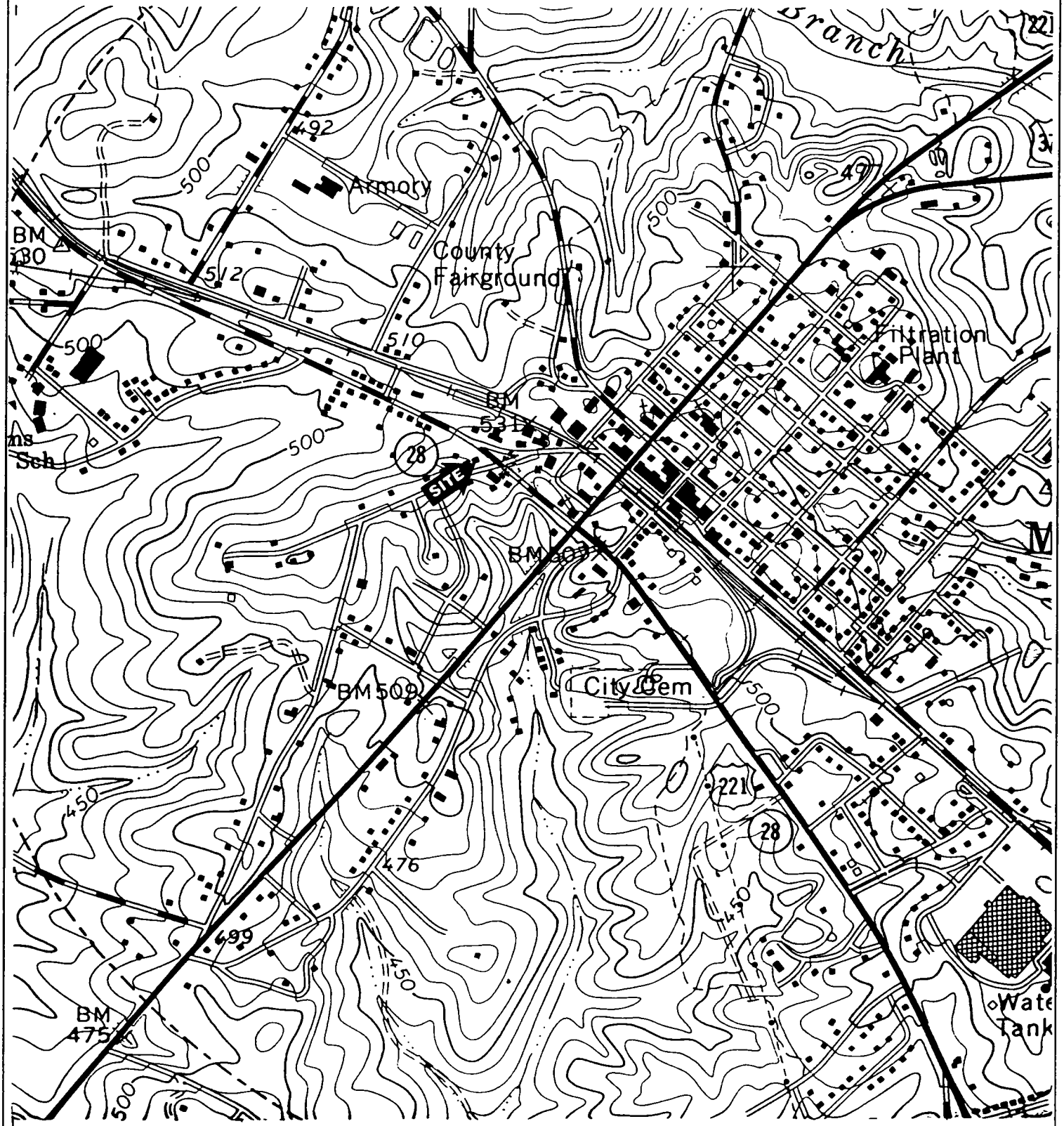
TABLES

GROUND WATER ANALYTICAL DATA

FIELD DATA INFORMATION SHEETS

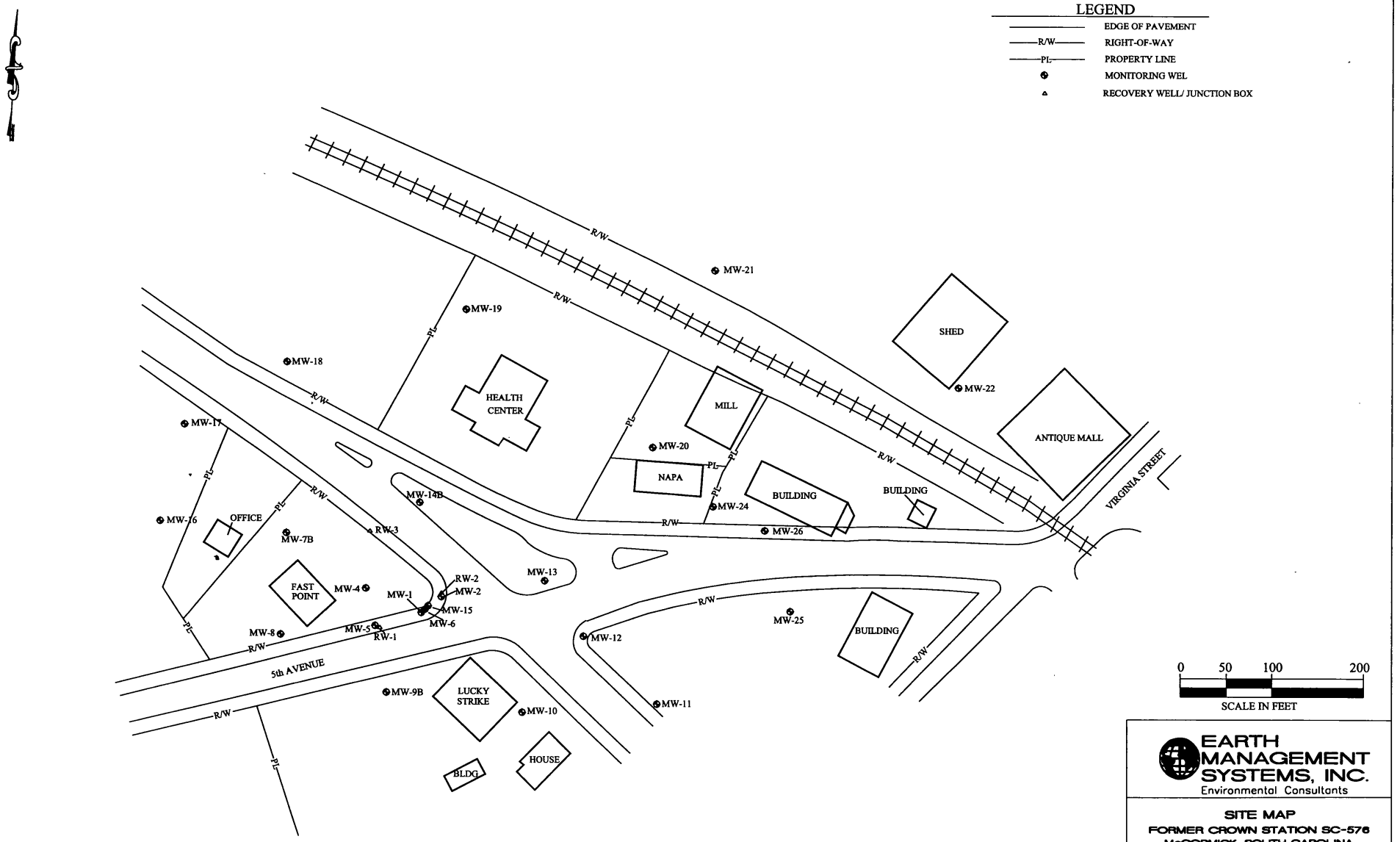
WASTE DISPOSAL MANIFEST

FIGURES



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

FIGURE 1
SITE LOCATION MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA
JOB NO.: 2125-036
SCALE: 1"=1,000'



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

SITE MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY	DATE:
DDD	10/29/01		
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 2	

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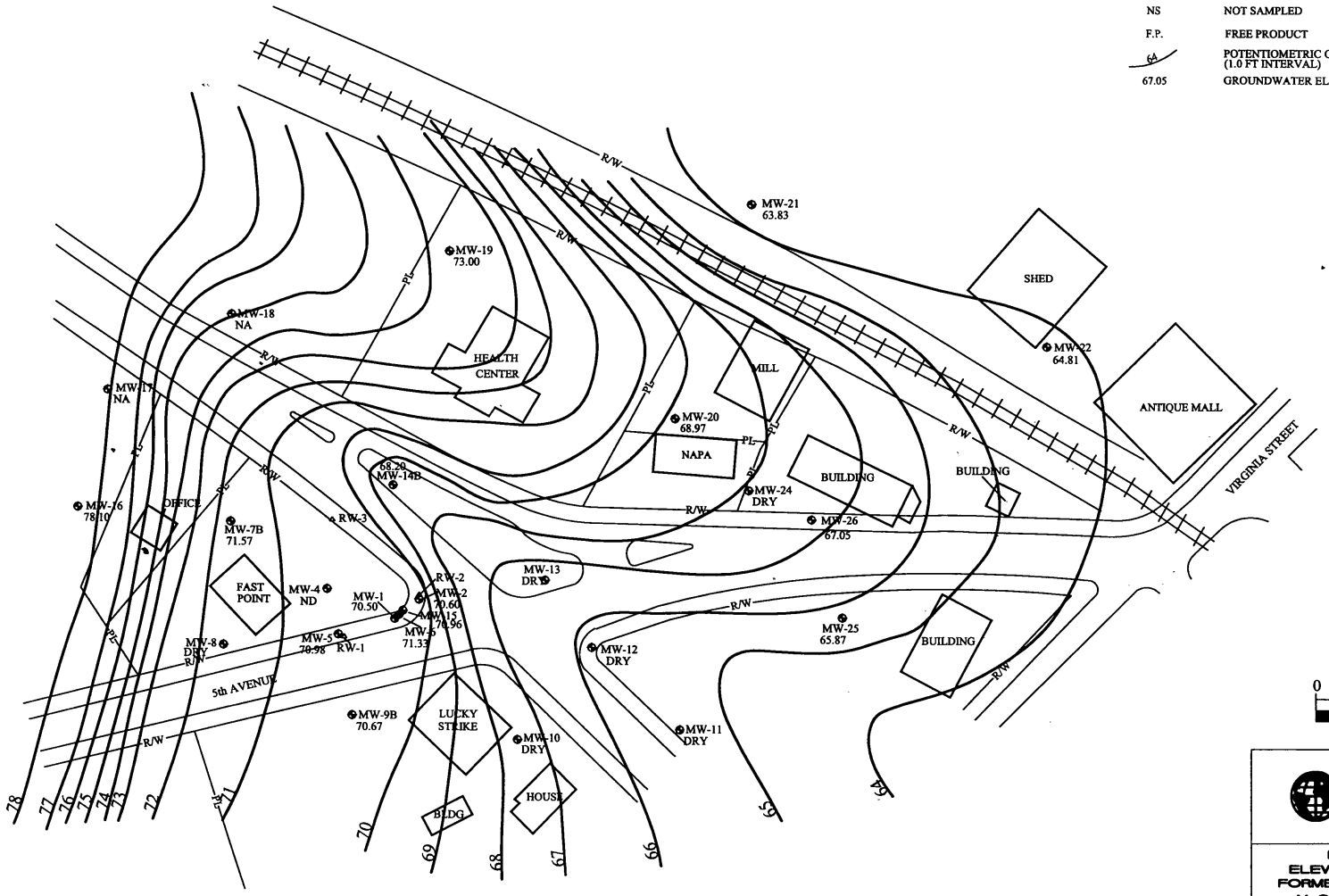

EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

POTENTIOMETRIC MAP
ELEVATIONS RECORDED 9/19/01
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY	DATE:	CHECKED BY:	DATE:
DDD	10/29/01		
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 3	

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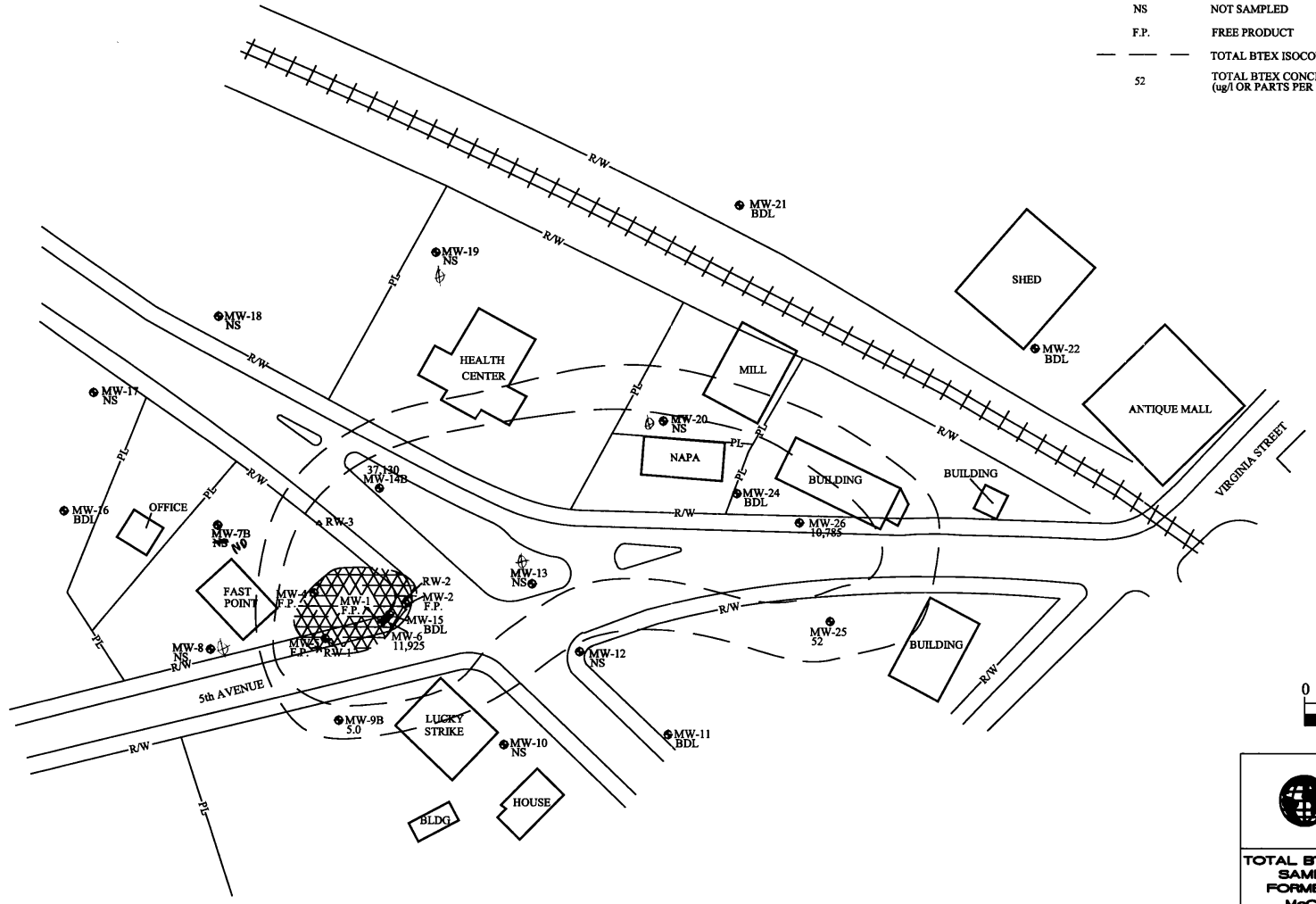

EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

TOTAL BTEX ISOCONCENTRATION MAP
SAMPLES COLLECTED 9/19/01
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
DDD	10/29/01		
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 4	

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TABLES

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-1	10/11/96	NA	100.03	22.20	23.23	1.03	77.60
	9/19/01			29.40	30.01	0.61	70.50
MW-2	10/11/96	NA	99.31	20.75	23.28	2.53	78.00
	9/19/01			28.31	29.74	1.43	70.69
MW-4	10/11/96	NA	101.51	23.45	24.29	0.84	77.88
	9/19/01			ND	Dry	ND	ND
MW-5	10/11/96	NA	102.16	21.89	24.08	2.19	79.79
	9/19/01			30.74	32.76	2.02	70.98
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
MW-8	10/11/96	10-20	103.85	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
MW-10	10/11/96	8-18	93.53	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			ND	Dry	ND	Dry
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			ND	Dry	ND	Dry
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	0.41	77.87
	9/19/01			ND	Dry	ND	Dry
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
MW-16	10/11/96	13-23.5	100.57	ND	Dry	ND	Dry
	9/19/01			ND	22.47	ND	78.10

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01			NA	Paved Over	NA	NA
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01			NA	Grown over	NA	NA
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			ND	Dry	ND	NA
MW-21	8/13/96	TD-40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
MW-22	8/13/96	30-40	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	NA	68.97
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05

Notes:

1) Ground Water elevations corrected for free product using the following formula:
*GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.*

2) ND - not detected

3) NA - data not available.

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	**165**	BDL	1,460	11,925	**5,860**	BDL	BDL	**249**	**64**
MW-7B	10/11/96	35.0	94.0	43.0	174.0	346	BDL	NA	BDL	18.0	16.0
	8/20/98	31.0	15.0	41.0	141.0	228	BDI	NA	BDL	41.0	10.0
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-8	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-9B	10/11/96	45.0	285.0	46.0	212.0	588	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	2.8	BDL	2.0	5	BDL	BDL	BDL	BDL	BDL
MW-10	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-11	10/11/96	BDL	BDL	BDL	BDL	BDL	4.67	NA	BDL	BDL	BDL
	8/20/98	BDL	0.8	0.9	BDL	1.70	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	2.2	1	BDL	BDL	3.2	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-13	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	38,800	BDL	NA	BDL	BDL	695
	8/20/98	**7,225**	**12,612**	**1,244**	6,192	27,273	158	NA	42.4	403	153
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	37,130	15.2	459	16.9	1040	1113
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	1.71	BDL	BDL	BDL	NA
MW-17	10/11/96	BDL	BDL	BDL	BDL	BDL	1.71	NA	BDL	BDL	BDL
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NOT SAMPLED. Well was not located, and has likely been paved over.									
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	NOT SAMPLED. Well was not located. Area overgrown with thick brush, 3 to 5 ft. high									
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	1	BDL	BDL	1	BDL	NA	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	**9,240**	39,740	**1,800**	NA	BDL	BDL	660
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	48,950	**1,500**	NA	678	**5150**	519
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-24	10/11/96	BDL	135	155	715	1,005	BDL	NA	BDL	BDL	48
	8/20/98	2.6	2	12	86	103	BDL	NA	0.18	12.9	16.7
	9/19/01	BDL	BDL	BDL	BDL	BDL	4.67	BDL	BDL	BDL	
MW-25	10/11/96	**2510**	85	2160	4590	9,345	**447**	NA	BDL	480	420
	8/20/98	**3081**	19	6	3046	6,152	**788**	NA	2.48	393	144
	9/19/01	3	5	2	42	52	BDL	17.6	BDL	1.09	NS
MW-26	10/11/96	**9200**	**18370**	**2100**	**9800**	39,470	BDL	NA	BDL	BDL	655
	8/20/98	**9760**	**19053**	**2455**	12534	43,802	**200**	NA	45	**728**	**367.4**
	9/19/01	**999**	**4,220**	**906**	**4,660**	10,785	BDL	346	BDL	**2070**	NS
RBSL	–	*5*	*1,000*	*700*	*10,000*	–	*40*	–	–	*10*	*10*

Notes:

1 *Results shown in boldface type indicate concentrations which exceed the RBSL for that compound*
2 *BDL - below laboratory method detection limit*
3 *ug/l - micrograms per liter or parts per billion*
4 *NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis*
5 *NA- data not available*
6 *MTBE - Methyl-tert-butyl-ether*
7 *TMB- 1,3,5 Trimethylbenzene*
8 *EDB - 1,2- Dibromomethane*
9 *PAHs - Total Polunuclear Aromatic Hydrocarbons as 1-Methylnaphthalene, 2-methylnaphthalene, and the 5 South Carolina specified parameters, Benzo(a)anthracene, Benzo(b)fluoroanthene, Benzo(k)fluroanthene, Chrysene, and Dibenzo(a,h)anthracene.*
10 *RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document*

TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	METHANE (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-6	9/19/01	BDL	0.18	12.90	BDL	6.6	0.131
MW-7B	9/19/01	NS	NS	NS	NS	NS	NS
MW-8	9/19/01	NS	NS	NS	NS	NS	NS
MW-9B	9/19/01	NA	INS	INS	INS	INS	0.012
MW-10	9/19/01	NS	NS	NS	NS	NS	NS
MW-11	9/19/01	NS	NS	NS	NS	NS	NS
MW-12	9/19/01	NS	NS	NS	NS	NS	NS
MW-13	9/19/01	NS	NS	NS	NS	NS	NS
MW-14B	9/19/01	NA	NS	NS	NS	Sheen	0.017
MW-15	9/19/01	BDL	BDL	12.9	0.4	6.6	BDL
MW-16	9/19/01	INS	INS	INS	INS	INS	INS
MW-17	9/19/01	NA	NS	NS	NS	NS	NS
MW-18	9/19/01	NA	NS	NS	NS	NS	NS
MW-19	9/19/01	NA	NS	NS	NS	NS	NS
MW-20	9/19/01	INS	INS	INS	INS	INS	0.006
MW-21	9/19/01	BDL	4.21	3.64	BDL	NA	0.073
MW-22	9/19/01	BDL	1.9	2.29	BDL	6.8	7.97
MW-24	9/19/01	NA	INS	INS	INS	INS	INS
MW-25	9/19/01	NA	INS	INS	INS	INS	INS
MW-26	9/19/01	NA	INS	INS	INS	INS	0.068

Notes: 1 NA -not analyzed
2 NS - not sampled
3 INS - insufficient amount of water available to analyze

GROUND WATER ANALYTICAL DATA

ACCESS ANALYTICAL, INC.

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219497
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-15
Collected: 09/19/01 16:10
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Nitrate (as N)	BDL	mg/L	300.0	0.05	09/22/2001	09/22/2001	10:32	RDB
Sulfate	12.9	mg/L	300.0	1.0	09/22/2001	09/22/2001	10:32	RDB
Ferrous, Iron (Fe2+)	0.4	mg/L	SM3500-Fe D.	0.03	09/21/2001	09/21/2001	16:30	CT
Lead	BDL	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:46	RP
8260B BTEX(Ext List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	3.31	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
Benzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
Toluene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:00	SKL
SURROGATE: Toluene-D8	97.25%							
SURROGATE: Bromofluorobenzene	107.50%							
SURROGATE: Dibromofluoromethane	89.75%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:41	ME
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:41	ME

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October 1, 2001
Report # 109000893
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Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-15
Collected: 09/19/01 16:10
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:41	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:41	ME
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:41	ME
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:41	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:41	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:41	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:41	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:41	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/21/2001	09/22/2001	11:41	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/21/2001	09/22/2001	11:41	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:41	ME
SURROGATE: D5-Nitrobenzene	104.00%							
SURROGATE: 2-Fluorobiphenyl	64.10%							

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Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219497
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-15
Collected: 09/19/01 16:10
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	12.00%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219498
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-6
Collected: 09/19/01 16:15
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Nitrate (as N)	0.18	mg/L	300.0	0.05	09/22/2001	09/22/2001	10:32	RDB
Sulfate	12.9	mg/L	300.0	1.0	09/22/2001	09/22/2001	10:32	RDB
Ferrous, Iron (Fe2+)	BDL	mg/L	SM3500-Fe D.	0.03	09/21/2001	09/21/2001	16:31	CT
Lead	0.131	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:47	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	100				
Methyl-Tert-Butyl Ether	5860	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
Benzene	10300	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
Toluene	165	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
Ethylbenzene	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
m & p-Xylene	220	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
o-Xylene	1240	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	06:01	SKL
Naphthalene	249	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:47	SKL
SURROGATE: Toluene-D8	95.50%							
SURROGATE: Bromofluorobenzene	96.00%							
SURROGATE: Dibromofluoromethane	85.00%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	189	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:42	ME
2-Methylnaphthalene	42.9	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:42	ME

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October 1, 2001
Report # 109000893
Order # 219498
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-6
Collected: 09/19/01 16:15
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
1-Methylnaphthalene	21.1	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:42	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:42	ME
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:42	ME
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:42	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:42	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:42	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:42	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:42	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/21/2001	09/22/2001	11:42	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/21/2001	09/22/2001	11:42	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:42	ME
SURROGATE: D5-Nitrobenzene	83.90%							
SURROGATE: 2-Fluorobiphenyl	57.20%							

M. Hudgins
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3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219498
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-6
Collected: 09/19/01 16:15
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	9.44%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219500
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-16
Collected: 09/19/01 15:00
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	1.71	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
Benzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
Toluene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
o-Xylene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:01	PMD
SURROGATE: Toluene-D8	81.75%							
SURROGATE: Bromofluorobenzene	98.75%							

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October 1, 2001
Report # 109000893
Order # 219500
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-16
Collected: 09/19/01 15:00
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: Dibromofluoromethane	100.75%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

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October 1, 2001
Report # 109000893
Order # 219502
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-9B
Collected: 09/19/01 16:30
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Lead	0.012	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:47	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
Benzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
Toluene	2.75	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
o-Xylene	2.03	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/24/2001	09/24/2001	13:02	PMD
SURROGATE: Toluene-D8	78.50%							
SURROGATE: Bromofluorobenzene	85.50%							
SURROGATE: Dibromofluoromethane	98.75%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:12	EJT
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:12	EJT
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:12	EJT
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:12	EJT
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:12	EJT

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October 1, 2001
Report # 109000893
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South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-9B
Collected: 09/19/01 16:30
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:12	EJT
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/22/2001	11:12	EJT
Fluorene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/22/2001	11:12	EJT
Anthracene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:12	EJT
Pyrene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/22/2001	11:12	EJT
Chrysene	BDL	ug/L	3510/8270C	1.000	09/21/2001	09/22/2001	11:12	EJT
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/21/2001	09/22/2001	11:12	EJT
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/22/2001	11:12	EJT
SURROGATE: D5-Nitrobenzene	161.00%							
SURROGATE: 2-Fluorobiphenyl	112.00%							

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Collected: 09/19/01 16:30
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	65.70%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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October 1, 2001
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Site Location/Project
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Sample I.D.: MW-14B
Collected: 09/19/01 16:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Lead	0.017	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:47	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	15.2	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:45	PMD
Benzene	5740	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:45	PMD
Toluene	16500	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:57	PMD
1,2-Dibromoethane (EDB)	16.9	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:57	PMD
Ethylbenzene	2420	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:58	PMD
m & p-Xylene	8310	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:58	PMD
o-Xylene	4160	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:58	PMD
1,3,5-Trimethylbenzene	459	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:58	PMD
1,2,4-Trimethylbenzene	2060	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:58	PMD
Naphthalene	752	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	12:59	PMD
SURROGATE: Toluene-D8	101.00%							
SURROGATE: Bromofluorobenzene	112.00%							
SURROGATE: Dibromofluoromethane	109.25%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	1040	ug/L	3510/8270C	5.000	09/21/2001	09/23/2001	11:44	ME
2-Methylnaphthalene	812	ug/L	3510/8270C	5.000	09/21/2001	09/23/2001	11:44	ME
1-Methylnaphthalene	301	ug/L	3510/8270C	5.000	09/21/2001	09/23/2001	11:44	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/23/2001	11:44	ME
Phenanthrene	BDL	ug/L	3510/8270C	5 000	09/21/2001	09/23/2001	11:44	ME

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South Carolina
Former Crown # 576

Sample I.D.: MW-14B
Collected: 09/19/01 16:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/23/2001	11:44	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/21/2001	09/23/2001	11:44	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/21/2001	09/23/2001	11:44	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/23/2001	11:44	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/21/2001	09/23/2001	11:44	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/21/2001	09/23/2001	11:44	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/21/2001	09/23/2001	11:44	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/21/2001	09/23/2001	11:44	ME
SURROGATE: D5-Nitrobenzene	141.00%							
SURROGATE: 2-Fluorobiphenyl	83.40%							

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Former Crown # 576

Sample I.D.: MW-14B
Collected: 09/19/01 16:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	22.40%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
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October 1, 2001
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Order # 219505
South Carolina Cert ID# 96023

Site Location/Project
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MW-24 (MW4)
Sample I.D.: ~~MW-20~~
Collected: 09/19/01 17:00
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Lead	0.006	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:47	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	4.67	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
Benzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
Toluene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
o-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	16:08	PMD
SURROGATE: Toluene-D8	94.75%							
SURROGATE: Bromofluorobenzene	117.00%							
SURROGATE: Dibromofluoromethane	87.50%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	11:47	ME
2-Methylnaphthalene	6.00	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	11:47	ME
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	11:47	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/23/2001	09/23/2001	11:47	ME
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	11:47	ME

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Report # 109000893
Order # 219505
South Carolina Cert ID# 96023

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Former Crown # 576

MW-24 (MW)
Sample I.D.: ~~MW-20~~
Collected: 09/19/01 17:00
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	11:47	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/23/2001	09/23/2001	11:47	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	11:47	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	11:47	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	11:47	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/23/2001	09/23/2001	11:47	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/23/2001	09/23/2001	11:47	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	11:47	ME
SURROGATE: D5-Nitrobenzene	108.00%							
SURROGATE: 2-Fluorobiphenyl	69.10%							

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MW-24 (mk)

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: ~~MW-20~~
Collected: 09/19/01 17:00
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	14.50%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
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October 1, 2001
Report # 109000893
Order # 219507
South Carolina Cert ID# 96023

Site Location/Project
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Sample I.D.: MW-26
Collected: 09/19/01 17:15
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Lead	0.068	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:49	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	100				
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	05:10	PMD
Benzene	999	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:34	PMD
Toluene	4220	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:34	PMD
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	05:10	PMD
Ethylbenzene	906	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:34	PMD
m & p-Xylene	3290	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:35	PMD
o-Xylene	1370	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:35	PMD
1,3,5-Trimethylbenzene	346	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:35	PMD
1,2,4-Trimethylbenzene	1750	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	13:35	PMD
Naphthalene	2070	ug/L	5030/8260B	100.000	09/25/2001	09/25/2001	05:10	PMD
SURROGATE: Toluene-D8	98.00%							
SURROGATE: Bromofluorobenzene	91.75%							

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Order # 219507
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-26
Collected: 09/19/01 17:15
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: Dibromofluoromethane	85.50%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219508
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-25
Collected: 09/19/01 17:25
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Lead	0.035	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:50	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
Benzene	2.64	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
Toluene	5.37	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
Ethylbenzene	2.10	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
m & p-Xylene	28.9	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
o-Xylene	13.3	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
1,3,5-Trimethylbenzene	17.6	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
Naphthalene	1.09	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	05:05	SKL
SURROGATE: Toluene-D8	94.75%							
SURROGATE: Bromofluorobenzene	117.00%							

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219508
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-25
Collected: 09/19/01 17:25
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: Dibromofluoromethane	87.50%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219510
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-22
Collected: 09/19/01 17:35
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Nitrate (as N)	1.9	mg/L	300.0	0.05	09/22/2001	09/22/2001	10:32	RDB
Sulfate	2.29	mg/L	300.0	1.0	09/22/2001	09/22/2001	10:32	RDB
Ferrous, Iron (Fe2+)	BDL	mg/L	SM3500-Fe D.	0.03	09/21/2001	09/21/2001	16:31	CT
Lead	7.97	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/22/2001	13:03	ERA
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
Benzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
Toluene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:02	SKL
SURROGATE: Toluene-D8	97.00%							
SURROGATE: Bromofluorobenzene	115.50%							
SURROGATE: Dibromofluoromethane	87.00%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	BDL	ug/L	3510/8270C	5.000	09/22/2001	09/23/2001	10:17	ME
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/22/2001	09/23/2001	10:17	ME

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219510
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-22
Collected: 09/19/01 17:35
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/22/2001	09/23/2001	10:17	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/22/2001	09/23/2001	10:17	ME
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/22/2001	09/23/2001	10:17	ME
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/22/2001	09/23/2001	10:17	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/22/2001	09/23/2001	10:17	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/22/2001	09/23/2001	10:17	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/22/2001	09/23/2001	10:17	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/22/2001	09/23/2001	10:17	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/22/2001	09/23/2001	10:17	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/22/2001	09/23/2001	10:17	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/22/2001	09/23/2001	10:17	ME
SURROGATE: D5-Nitrobenzene	81.60%							
SURROGATE: 2-Fluorobiphenyl	76.00%							

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219510
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-22
Collected: 09/19/01 17:35
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	65.70%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219511
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-21
Collected: 09/19/01 17:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
Nitrate (as N)	4.21	mg/L	300.0	0.05	09/22/2001	09/22/2001	10:32	RDB
Sulfate	3.64	mg/L	300.0	1.0	09/22/2001	09/22/2001	10:33	RDB
Ferrous, Iron (Fe2+)	BDL	mg/L	SM3500-Fe D.	0.03	09/21/2001	09/21/2001	16:31	CT
Lead	0.073	mg/L	SM3113B (239.2)	0.005	09/21/2001	09/21/2001	12:50	RP
8260B BTEX(Ext. List)in Water by GC-MS (S.C.)			MEDF	1				
Methyl-Tert-Butyl Ether	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
Benzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
Toluene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
1,2-Dibromoethane (EDB)	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
1,3,5-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
1,2,4-Trimethylbenzene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	09/25/2001	09/25/2001	06:03	SKL
SURROGATE: Toluene-D8	95.75%							
SURROGATE: Bromofluorobenzene	115.50%							
SURROGATE: Dibromofluoromethane	96.50%							
8270C PAHs (610) in WATER by GC/MS (Ion Trap)			MEDF	1				
Naphthalene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	10:18	ME
2-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	10:18	ME

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219511
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-21
Collected: 09/19/01 17:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.		ANALYST
1-Methylnaphthalene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	10:18	ME
Acenaphthene	BDL	ug/L	3510/8270C	3.000	09/23/2001	09/23/2001	10:18	ME
Phenanthrene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	10:18	ME
Fluoranthene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	10:18	ME
Benzo(a)anthracene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
Benzo(b)fluoranthene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
Benzo(a)pyrene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
Benzo(ghi)perylene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
Acenaphthylene	BDL	ug/L	3510/8270C	3.000	09/23/2001	09/23/2001	10:18	ME
Fluorene	BDL	ug/L	3510/8270C	5.000	09/23/2001	09/23/2001	10:18	ME
Anthracene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	10:18	ME
Pyrene	BDL	ug/L	3510/8270C	0.300	09/23/2001	09/23/2001	10:18	ME
Chrysene	BDL	ug/L	3510/8270C	1.000	09/23/2001	09/23/2001	10:18	ME
Benzo(k)fluoranthene	BDL	ug/L	3510/8270C	0.500	09/23/2001	09/23/2001	10:18	ME
Indeno(1,2,3-cd)pyrene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
Dibenzo(a,h)anthracene	BDL	ug/L	3510/8270C	0.200	09/23/2001	09/23/2001	10:18	ME
SURROGATE: D5-Nitrobenzene	108.00%							
SURROGATE: 2-Fluorobiphenyl	94.90%							

M. Hudgins
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

October 1, 2001
Report # 109000893
Order # 219511
South Carolina Cert ID# 96023

Site Location/Project
South Carolina
Former Crown # 576

Sample I.D.: MW-21
Collected: 09/19/01 17:45
Received: 09/21/01 10:00
Collected by: Client

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
SURROGATE: 4-Terphenyl-D14	41.80%						

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: Al.=#41180, Ct.=#PH0217, Ks.=#E270 + E1245, Ky.=#90087, La.=#9601, Md.=#271, Ma.=#M-FL535
ND.=#R163, OK.=#9523, SC.=#96023, Tn.=#TN02826
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

ACCESS
ANALYTICAL, INC.

Client: Earth Management Systems
Project: Former Crown # 576
-- WATER SAMPLES --

SAMPLE NAME	METHANE (ug/l)	METHOD	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED
MW 15	ND	KERR	9/19/2001	9/20/2001	9/24/2001
MW 6	ND	KERR	9/19/2001	9/20/2001	9/24/2001
MW 22	ND	KERR	9/19/2001	9/20/2001	9/24/2001
MW 21	ND	KERR	9/19/2001	9/20/2001	9/24/2001

MDL for above samples = 10 ug/L

ND - denotes 'Not Detected" at or above the lower method detection limit

- Unless otherwise noted in comments section samples listed above analyzed for methane by C.A.L., 3005 Broad River Rd. Columbia, SC 29210.

COMMENTS:

Company Service Representative

1248 LAKE MURRAY BLVD. • IRMO, S.C. 29063
PHONE (803) 781-4243 • TOLL FREE (888) 315-4243 • FAX (803) 781-4303 • EMAIL: AXSANALYT@AOL.COM

Access Analytical- Chain of Custody Record

Project Submission #: 01/9-893 219497 - 219511 RUSH # (if applicable): (UP) Laboratory ID: _____ PO #: SC-576

Company Name: EARTH MANAGEMENT

Address: 3025 McNaughton Drive

City: Cola. State: S.C Zip: 29224

Project Name: FORMER CROWN # 576

Report To: Mike Hudgins

REQUESTED LAB ANALYSIS:

ACCESS ANALYTICAL, INC.

1248 Lake Murray Blvd.
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243

Sample Label	Date Collected	Time Collected	Matr	# of Cont	PARAMETER	Amber PAHs	40 ml Vials VOCs (BTEX, Naph, MTBE, EDB, TMB)	40 ml Amber Methane	Plastic Lead	Plastic Nitrate/Sulfate	Amber Ferrous Iron		NOTES / COMMENTS
MW-15	9/19/01	1600		8		1	2	2	1	1	1	219497	Methane Subed out
MW-6	↓	1615		8		1	2	2	1	1	1	219498	
MW-16		1500		1			1					219500	
MW-9B		1630		4		1	2	[illegible]	1			219502	PAH Bottle 1/4 full
MW-14B		1645		4		1	2		1			219504	
~~MW-20~~ MW-24 (MH)		1700		4		1	2		1			219505	
MW-26		1715		3			2		1			219507	Lead Bottle 1/4 full
MW-25		1725		3			2		1			219508	-"-
MW-22		1735		8		1	2	2	1	1	1	219510	
MW-21	↓	1745		8		1	2	2	1	1	1	219511	

Turnaround Time:
✓ Std. (5-7 Bus. days)
___RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
✓ Yes
___No

Project Location:
✓ SC
___NC
___Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
M. Hudgins	9/20/01	13:50	Cheryl Barr
Cheryl Barr	9/20/01	1700	Fedex
Fedex			VJ SR 9/21/01 1000

Original Copy - Returned w/Report
Yellow Copy - Access Analytical Copy
Pink Copy - Client Copy

Pg_____of_____

Access Analytical, Inc.

See reverse for Terms and Conditions

FIELD DATA INFORMATION SHEETS

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Rembert Huggins
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 85 °F

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Former Crown SC-576
Facility ID#: #06443 Well #: MW-1

Well Diameter (D): 2 inch of 30 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 29.40 feet 0.6 feet product
Depth to Ground Water (DGW) _____ feet
Total Well Depth (TWD) 30.11 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: NO Samples Free Product

DHEC 3529 (11/1997)

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Reinhart Hudgins
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 85 °F

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Exxon Crown Site 576
Facility ID#: 06443 Well #: MW-2

Well Diameter (D): 2 inch of 30 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 28.31 feet 1.43 Ft product.
Depth to Ground Water (DGW) 29.74 feet
Total Well Depth (TWD) 30.10 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: No Samples Free Product

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: P. Reinhart, M. Hudgins
General Weather Conditions: Sunny & Partly Cloudy

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Former Crown #SC-576
Facility ID#: 06443 Well #: MW-6

Well Diameter (D): 2 inch of 58 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 29.12 feet
Total Well Depth (TWD) 58.00 feet
Length of Water Column (LWC = TWD- DGW) 28.88 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 14 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		6	12	18				
Time (military)		1345	1610	1630				
pH (s.u.)		6.4	6.8	6.6				
Specific Cond. (µmhos/cm)		240	308	254				
Water Temperature (°C)		22.7	23.6	23.7				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: _____

1/1997)

DHEC
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: P. Kendal
General Weather Conditions: Sunny PARTLY CL

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Former Crown SC-576
Facility ID#: 0443 Well #: MW-9B

Well Diameter (D): 2 inch of 30 feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 28.32 feet
Total Well Depth (TWD) 30.00 feet
Length of Water Column (LWC = TWD- DGW) 1.7 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 0.8 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Sufficient samples were collected for VOCs, PAH and Lead.

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: P. Reinhart Mr Hudgins
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Crown Site SC-576
Facility ID#: SC-576 #06443 Well #: MW-4B

Well Diameter (D): 2 inch of 40 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 0.3 feet
Depth to Ground Water (DGW) 32.54 feet
Total Well Depth (TWD) 40 feet
Length of Water Column (LWC = TWD- DGW) 7.5 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = ____ gals
3 Casing Volume 3 X CV = ____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 2 gals.
Sheen

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons) No indicators taken								
Time (military) because of Sheen.								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Product Sheen was detected - One of Product detected after 2 gallons purged. 4 inch of product by end of Sampling

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/1/01
Field Personnel: D Slater
General Weather Conditions: Clear, sunny

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Crown Site SC-576
Facility ID#: #06443 Well #: MW-15

Well Diameter (D): 2 inch of 130 feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 29.82 feet
Total Well Depth (TWD) 130.50 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 50 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		17.5	35.0	50.0				
Time (military)		14:10	15:15	1600				
pH (s.u.)		6.7	6.7	6.6				
Specific Cond. (µmhos/cm)		145	127	123				
Water Temperature (°C)		23.8	22.9	21.4				
Turbidity (subjective: clear, slightly cloudy, cloudy)		Cloudy	Clear	Clear				
PID Readings (if required)								

Remarks: _____

DHEC 3529 (11/1997)

DHEC
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Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Rembert & Hodgins
General Weather Conditions: Cloudy

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: CROWN Site SC576
Facility ID#: #06443 Well #: MW-16

Well Diameter (D): 2 inch of 23 feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 22.4 feet
Total Well Depth (TWD) 23 feet
Length of Water Column (LWC = TWD- DGW) 0.5 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 0.25 gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 0.25 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		0.25						
Time (military) No indicators								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Only enough sample for VOC analysis

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Rembert Hudgins
General Weather Conditions: Clear + sunny

Ambient Air Temperature: 65 °C F

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: E. Crown Site SC576
Facility ID#: 06443 Well #: MW-20

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 0 feet
Depth to Ground Water (DGW) 28.20 feet
Total Well Depth (TWD) 38.5 feet
Length of Water Column (LWC = TWD- DGW) 10 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 5 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		1.75	3.5	SX				
Time (military)		12:45	12:50	DRY				
pH (s.u.)		6.3	6.6					
Specific Cond. (µmhos/cm)		147	145					
Water Temperature (°C)		18.6	17.3					
Turbidity (subjective: clear, slightly cloudy, cloudy)		Cloudy	Cloudy					
PID Readings (if required)								

Remarks: _____

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Richard Rodgers
General Weather Conditions: Cloudy

Ambient Air Temperature: 85 °C/F

Facility Name: Former Crown Site SC576
Facility ID#: 06443 Well #: MW-21

Well Diameter (D): 2 inch of 40 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 33.7 feet
Total Well Depth (TWD) 40.3 feet
Length of Water Column (LWC = TWD- DGW) 6.3 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 3.6 gals.

* If free product is present over 1/8 inch, sampling will not be required.

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)				566				
Water Temperature (°C)				15.5				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: pH / Conductivity Meters Malfunction

DHEC 3529 (11/1997)

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Rentrot, Hudgins
General Weather Conditions: Cloudy

Ambient Air Temperature: 85 °F

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Former Conn Site SC576
Facility ID#: #06443 Well #: MW-22

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 36 feet
Total Well Depth (TWD) 42 feet
Length of Water Column (LWC = TWD- DGW) 6 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 3 gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		3						
Time (military)		1707						
pH (s.u.)		6.8						
Specific Cond. (µmhos/cm)		17						
Water Temperature (°C)		19.2						
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: _____

DHEC 3529 (11/1997)

D H E C
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Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/01
Field Personnel: Burkett, Hudgins
General Weather Conditions: Cloudy

Ambient Air Temperature: 85 °C / =

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Farmer Cabin Site SC-576
Facility ID#: 06443 Well #: MW-25

Well Diameter (D): 2 Inch of 30 feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 29.1 feet
Total Well Depth (TWD) 30 feet
Length of Water Column (LWC = TWD- DGW) 0.9 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 0.45 gals.

* If free product is present over 1/8 Inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons) No Parameters								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Only Sufficient Sample for VOCs and Lead.

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/01
Field Personnel: Rembert Rudolph
General Weather Conditions: Cloudy

Ambient Air Temperature: 85 °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Former Crown Site SC-576
Facility ID#: #06443 Well #: MW-2b

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: Sheen feet
Depth to Ground Water (DGW) 29.3 feet
Total Well Depth (TWD) 30 feet
Length of Water Column (LWC = TWD- DGW) 1.0 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling 9.5 gals.
Sheen

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military) No. indicators								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Only Sufficient Sample For VOCs and Lead
Sheen observed in Purge Water

DHEC 3529 (11/1997)

WASTE DISPOSAL MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of	
	GK4077		10-10-01

GENERATOR

3. Generator's Name and Mailing Address: CROWN SC-576
HWY 28 NORTH AT 5TH AVE.
MCCORMICK, SC

4. Generator's Phone ( )

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
G&K TANK SERVICES	SCD987573557	803-481-4593
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone

9. Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone
G&K TANK SERVICES HWY 76/378 WEST SUMTER, SC 29154		803-481-4593

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON HAZARDOUS PETROLEUM CONTAMINANTED WATER	2	DR		
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EARTH MANAGEMENT
P.O. BOX 24287
COLUMBIA, SC

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Frank Tidwell Jr.	Frank Tidwell	10	11	01

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
S. Collett	S. Collett	10	11	01

ORIGINAL - RETURN TO GENERATOR

Broad St. Extension • PO Box 1384 • Sumter, SC 29151
(803) 494-2694 • 1-800-800-6840 • FAX: (803) 494-8598

Certificate of Disposal

Tons 2 Drums
Crown SC-576
McCromick, Sc

Contaminant NonHazardous Petroleum
Contaminanted Water

This is to cerify the above ~~soil~~ water has been processed and disposed of by G & K Tank Services, Inc., in accordance with and exceeding EPA regulations on petroleum contaminated soils.

Certified by S. Gilley

Date 10/11/01

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443
EMS Job No. 2125-036

RECEIVED
NOV 0 4 2002
Underground Storage
Tank Program

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443

Prepared For:

Crown Central Petroleum Corporation
8227 Cloverleaf Drive, Suite 304
Millersville, Maryland 21108

Prepared By:

Earth Management Systems, Inc.
3025 McNaughton Drive
Columbia, South Carolina 29203

Date:

October 28, 2001

Norman E. Partin, Jr., C.H.M.M.
Project Environmental Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

INTRODUCTION

Earth Management Systems, Inc. (EMS) has completed the monitoring well replacement and ground water sampling and analysis at the Former Crown SC-576 facility, 201 US Highway 28 and 32, McCormick, South Carolina. A site location map is included as Figure 1. This work was performed in accordance with SCDHEC Cost Proposal No. 15122. The purpose of the sampling was to evaluate the current ground water quality conditions in response to a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site and to evaluate the potential for intrinsic remediation as a viable corrective action for this site. Key monitoring wells found to be dry during the last sampling event were replaced as part of this evaluation.

This report includes a brief summary of the field methods utilized along with results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

MONITORING WELL INSTALLATION

Six shallow (Type II) monitoring wells (MW-4R, MW-8R, MW-12R, MW-13R, MW-19R, and MW-20R) were installed by EMS in conjunction with this evaluation. These wells were installed to replace previously installed wells that are dry because of the current drought. Each well was installed immediately adjacent to the dry well it is replacing. All wells were constructed in accordance with South Carolina Well Standards and Regulations by a state certified water well driller. Auger cuttings were examined during well installation for verification of soil descriptions provided on previous geologist logs. Water well records and previous geologist logs are included in the Appendix. Hydrocarbon impacted soil cuttings generated from the installation of monitoring wells were containerized and subsequently shipped to G&K Tank Services of Sumter, South Carolina for disposal. The disposal manifest is included in the Appendix.

The borings for the replacement monitoring wells were drilled to depths ranging from 30 feet to 49.5 feet below ground surface using 4.25-inch hollow-stem augers. The Type II wells were completed with two-inch PVC casing and 15 feet of 0.010-inch slot screen installed to bracket the water table. A clean, graded sand pack was placed around the annulus of the monitoring wells to within two feet above the screens, and the wells were developed with a submersible pump to remove formational fines from the wells and gravel pack. A bentonite seal was placed above the sand pack and the

remaining annulus was grouted to land surface with cement grout. A locking cap and vault cover with concrete pad was installed at land surface at each well. MW-4R was completed with ten feet of screen. MW-4 was set as a dry well on top of the soil/rock interface per approval by Stephen Maxwell, the SCDHEC project manager for this site. The screen settings of the monitoring wells are included on Table 1.

GROUND WATER OCCURRENCE AND FLOW DIRECTION

Water level measurements were recorded at the site monitoring wells on September 18, 2002. A total of 18 monitoring wells could not be gauged; 15 of the wells were dry (MW-1, MW-2, MW-4, MW-4R, MW-5, MW-8, MW-9B, MW-10, MW-11, MW-12, MW-13, MW-16, MW-19, MW-20, and MW-26), two monitoring wells (MW-17 and MW-18) could not be located, and one well (MW-7B) was blocked by a solid waste dumpster. Ground water elevations were determined by subtracting the depth to water, which was measured using an oil/water interface probe, from previously surveyed elevations at each well. One of the wells (MW-14B) contained free-product at a thickness 0.63 feet. Ground water elevation and free product thickness data are presented in Table 1.

A potentiometric surface map of the water table aquifer is included as Figure 2. Inspection of Figure 2 indicates the ground water flow direction in the water table aquifer to be radially toward the north to east-southeast, with a hydraulic gradient of approximately 0.018 ft./ft. Ground water elevations are approximately 3.0 feet lower than the elevations recorded during the previously recorded event, resulting in a greater number of dry wells.

GROUND WATER SAMPLING AND LABORATORY DATA

Ground water samples were collected from 10 of the 30 site monitoring wells on September 18 and 19, 2002. Twenty of the wells were either dry (MW-1, MW-2, MW-4, MW-4R, MW-5, MW-8, MW-9B, MW-10, MW-11, MW-12, MW-13, MW-16, MW-19, MW-20, and MW-26), blocked (MW-7B), lost (MW-17, MW-18), contained free product (MW-14B), or did not contain a sufficient amount of water to sample (MW-25). Samples that could be collected were obtained from the monitoring wells with dedicated sampling equipment and surgical gloves to prevent cross-contamination between wells. A minimum of three well water volumes was purged from each of the wells, or the wells were purged to dryness prior to sampling. Purge water generated during sampling

of impacted wells was drummed along with the soils and disposed of by G&K Tank Services, of Sumter, South Carolina. A waste disposal manifest is included in the Appendix.

PETROLEUM-RELATED COMPOUNDS

Ground water samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), 1,2-dibromomethane (EDB) and naphthalene per Environmental Protection Agency (EPA) Method 8260, along with total lead, methane, nitrate, sulfate, and ferrous iron. All samples were placed in laboratory prepared containers with a completed chain of custody log, packed in a cooler filled with ice, and shipped to a South Carolina certified laboratory for chemical analysis. A summary of ground water quality data collected for this assessment is provided as Table 2. A copy of the laboratory report and the ground water sampling Field Data Information Sheets are included in the Appendix.

Free product (0.63 feet) was detected in one off-site monitoring well (MW-14B) located downgradient of the former UST area. Inspection of the laboratory data indicate the presence of dissolved hydrocarbon compounds at concentrations above Risk Based Screening Levels (RBSLs) in monitoring wells MW-6, MW-12R, and MW-20R. Inspection of the previous water quality data indicates some of the monitoring wells which could not be sampled as a part of this sampling event (MW-7B and MW-26) likely contain hydrocarbon concentrations above RBSLs. A Total BTEX concentration map illustrating the current distribution of hydrocarbon compounds based on the above data is included as Figure 3. The dissolved hydrocarbon plume is estimated to be approximately 600 feet long and 260 feet wide at the source area tapering to approximately 80 feet wide at the downgradient edge. MTBE and Naphthalene were also detected in the wells that contained BTEX compounds, indicating the distribution of these compounds is relatively the same as the BTEX plume.

Total lead was detected in monitoring wells MW-21 (2.21 mg/l) and MW-22 (0.49 mg/l), located downgradient from the site. Total lead was the only compound detected in these wells, and was detected at significantly higher concentrations than the concentrations detected in the site monitoring wells. Additionally, EDB concentrations were detected only in wells that contained hydrocarbon compounds. Based on this data, the total lead detected in ground water at downgradient wells MW-21 and MW-22 is not likely due to the petroleum release at the subject site.

NATURAL ATTENUATION INDICATOR PARAMETERS

Ground water samples were analyzed for nitrate, sulfate, ferrous iron, and methane. These parameters provide evidence of the aquifer's ability to naturally remediate the hydrocarbons present. A summary of the natural attenuation indicator parameter data collected to date is provided as Table 3. No clear trends regarding the assimilative capacity of the aquifer could be established from the data set.

CONCLUSIONS AND RECOMMENDATIONS

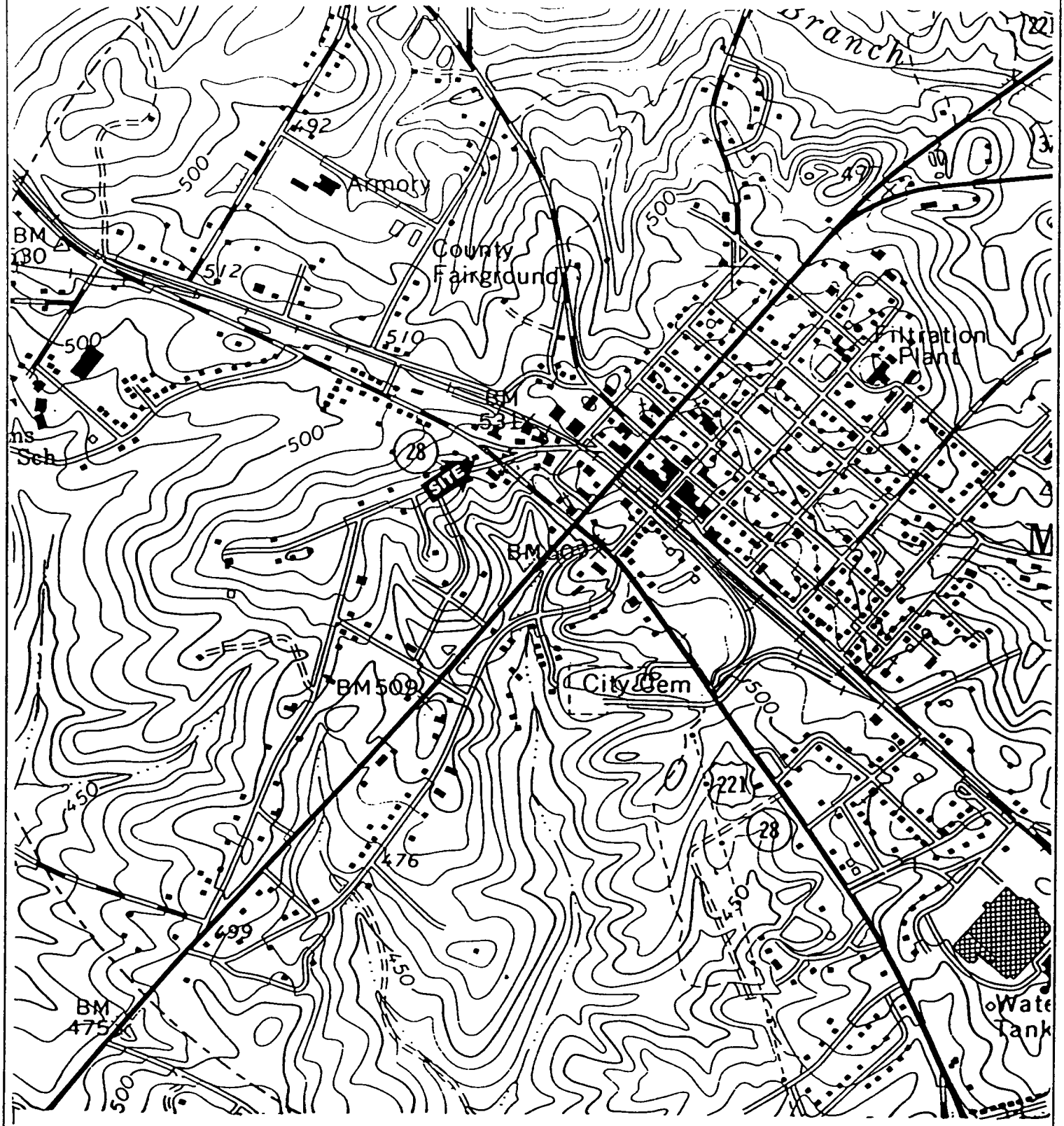
The results of this comprehensive sampling and analysis indicate that the horizontal extent of the free phase hydrocarbon plume has not been defined by the monitoring well network. According to historical data, free product also was measured in on-site monitoring wells that are now dry. Based on the existing site conditions, additional wells should be installed to delineate the free product plume and then product removal from these wells should be performed as soon as possible. Additionally, a Tier II Risk-Based evaluation should be performed at this site to determine the risk of human exposure of the release. The Tier II evaluation would include a receptor survey to identify potential exposure pathways and receptors of hydrocarbon impacted groundwater. Contaminant fate and transport modeling should also be performed as a part of the Tier II evaluation to determine if, once free product is removed, the site is a candidate for passive remediation by monitored natural attenuation.

LIMITATIONS

This report has been prepared for the exclusive use of Crown Central Petroleum for specific application to the Former Crown SC-576 facility – 201 Highway 28 and 32 in McCormick, South Carolina. Our findings have been developed in accordance with generally accepted standards of geology and hydrogeology practice in South Carolina. No other warranty is expressed or implied. We accept no responsibility for damages or claims resulting from past or future contamination, or subsequent remediation.

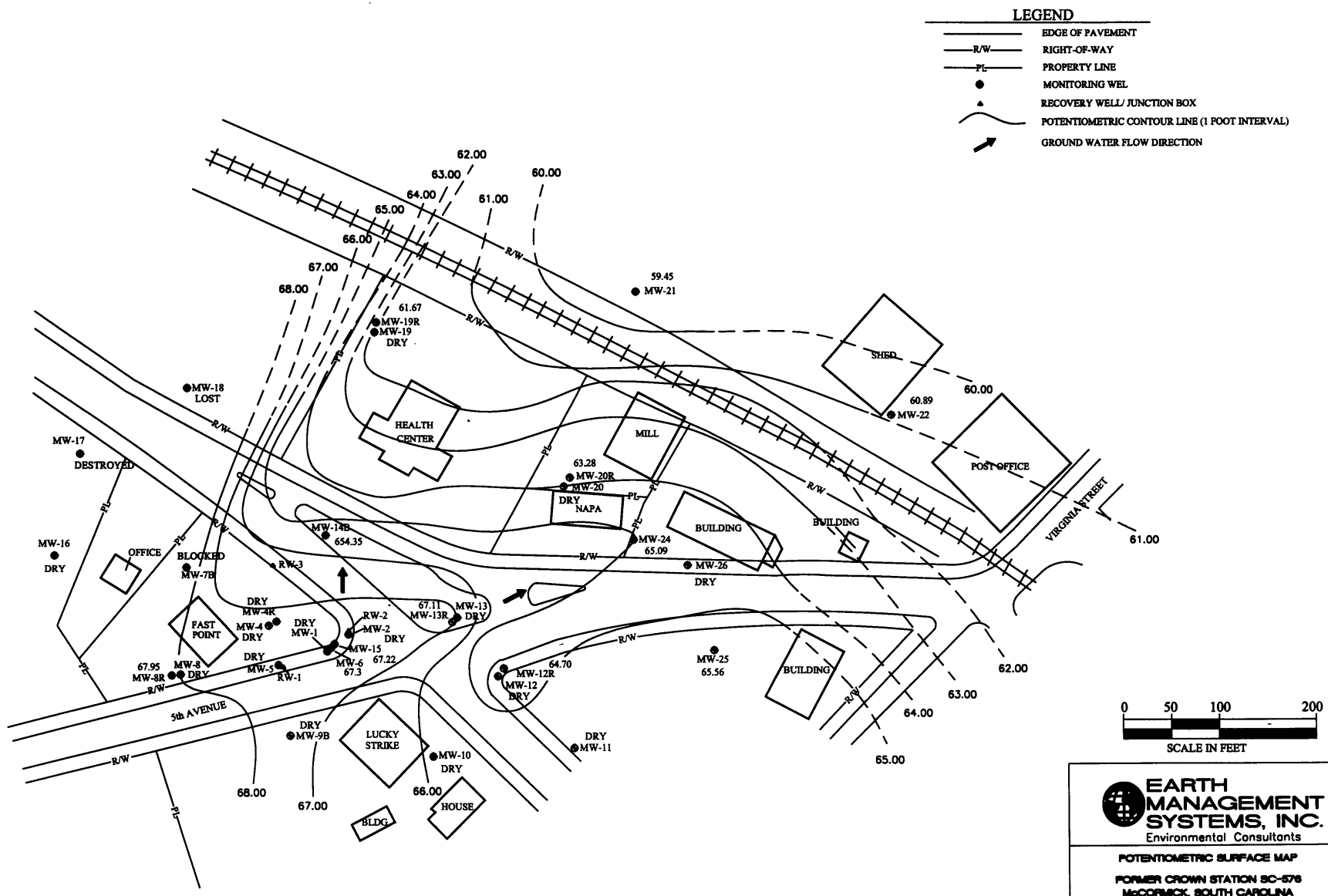
APPENDIX

FIGURES



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

FIGURE 1
SITE LOCATION MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA
JOB NO.: 2125-036
SCALE: 1"=1,000'



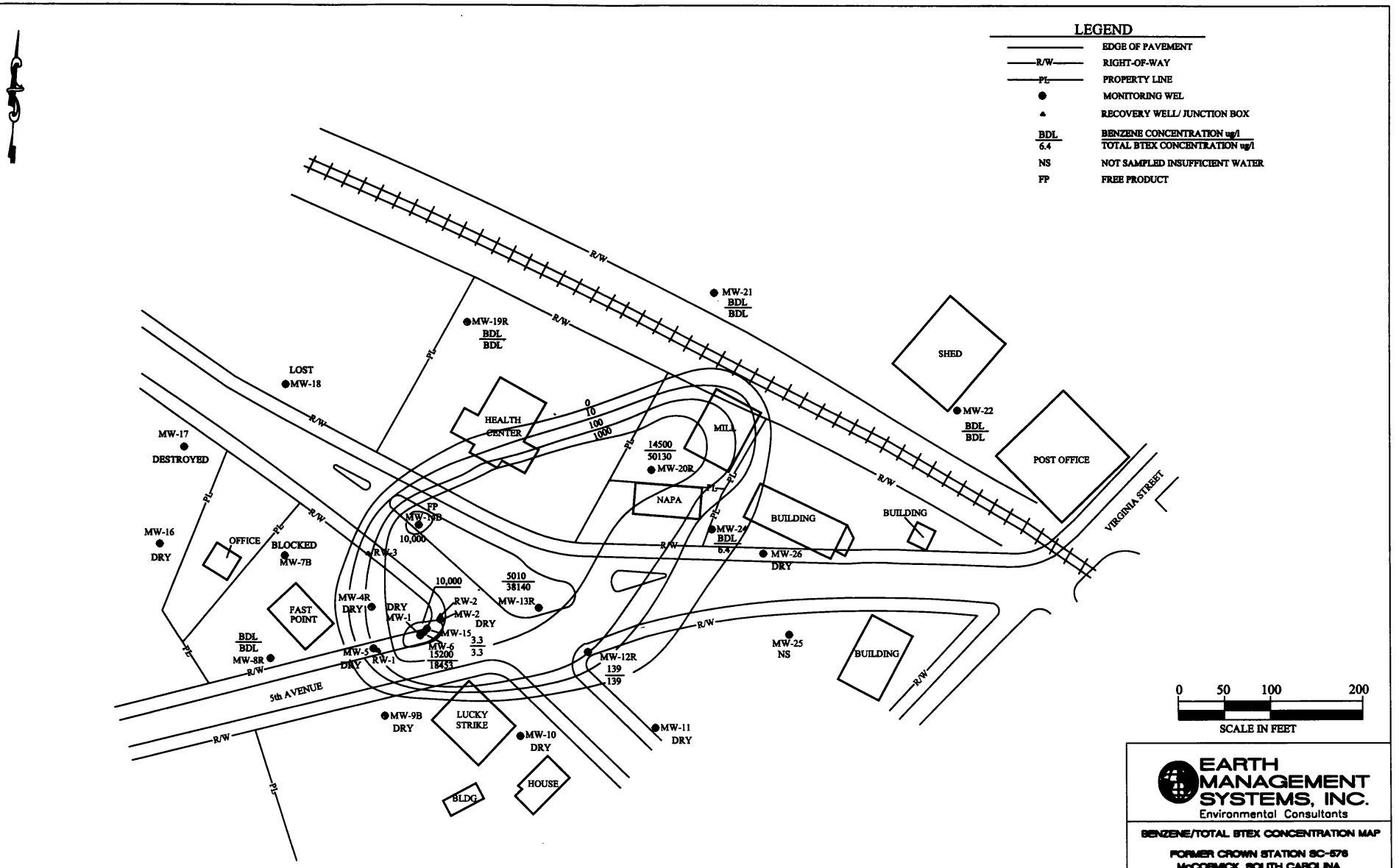
EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

POTENTIOMETRIC SURFACE MAP

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
DDD	10/27/02	GP	10/28/02
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 2	

D:\PROJECTS\2001JOBS\2125-036\CROWN.DWG



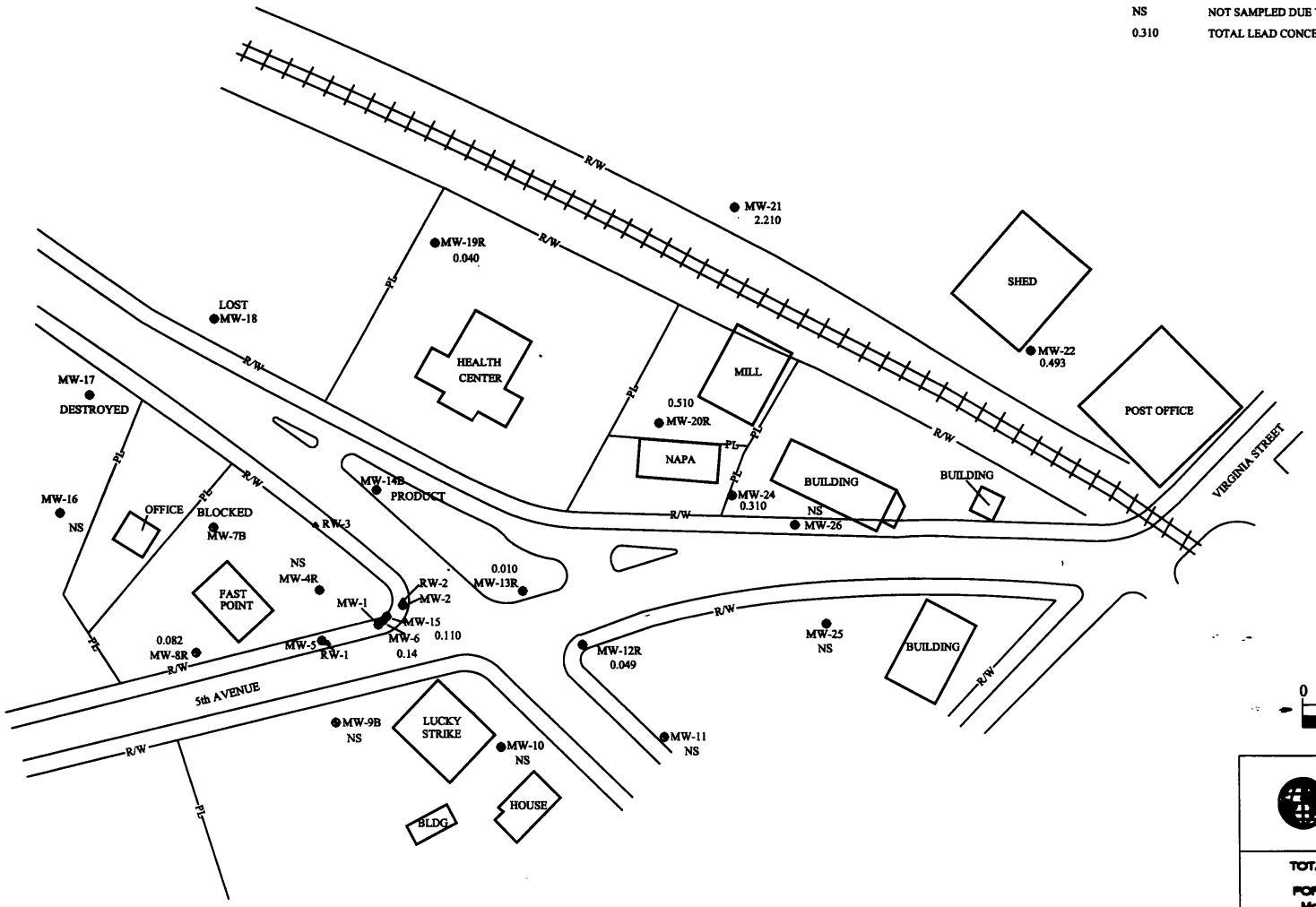
EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

BENZENE/TOTAL BTEX CONCENTRATION MAP

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
DDD	10/27/02	GP	10/28/02
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO: 2125-036		FIGURE 3	

D:\PROJECTS\2001\JOBS\2125-036\CROWN.DWG



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

TOTAL LEAD CONCENTRATION MAP

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
DDD	10/27/02	GP	10/28/02
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO: 2125-036		FIGURE 4	

D:\PROJECTS\2001\JOBS\2125-036\CROWN.DWG

TABLES

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-1	10/11/96	NA	100.03	22.20	23.23	1.03	77.60
	9/19/01			29.40	30.01	0.61	70.50
	9/18/02	19.0-29.0' ?		ND	Dry	ND	Dry
MW-2	10/11/96	NA	99.31	20.75	23.28	2.53	78.00
	9/19/01	18.0-28.0'		28.31	29.74	1.43	70.69
	9/18/02	?		ND	Dry	ND	Dry
MW-4	10/11/96	NA	101.51	23.45	24.29	0.84	77.88
	9/19/01	18.0-28.0'		ND	Dry	ND	ND
MW-4R	9/18/02	20.5-30.5	101.56	ND	Dry	ND	Dry
MW-5	10/11/96	NA	102.16	21.89	24.08	2.19	79.79
	9/19/01			30.74	32.76	2.02	70.98
	9/18/02	20.0-30.0' ?		ND	Dry	ND	Dry
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02	45.0-55.0'		ND	33.15	ND	67.30
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02		NO ACCESS TO WELL, DUMPSTER ON TOP OF WELL				
MW-8	10/11/96	10-20	103.85	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			ND	Dry	ND	Dry
MW-10	10/11/96	8-18	93.53	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			ND	Dry	ND	Dry
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	0.41	77.87
	9/19/01			ND	Dry	ND	Dry
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	0.63	65.35
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
MW-16	10/11/96	13-23.5	100.57	ND	Dry	ND	Dry
	9/19/01			ND	22.47	ND	78.10
	9/18/02			ND	Dry	ND	Dry
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL PAVED OVER					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL GROWN OVER					
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			ND	Dry	ND	NA
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
MW-21	8/13/96	TD-40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	NA	68.97
	9/18/02			ND	32.08	ND	65.09
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			ND	DRY	ND	DRY

Notes:

1) Ground Water elevations corrected for free product using the following formula:
*GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.*

2) ND - not detected

3) NA - data not available.

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-4R	9/18/2002	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**11,925**	**5,860**	BDL	BDL	**249**	**64**
	9/18/02	**15,200**	684	291	2,278	**18,453**	**13,500**	NA	1.5	**356**	NA
MW-7B	10/11/96	**35.0**	94.0	43.0	174.0	346	BDL	NA	BDL	**18.0**	**16.0**
	8/20/98	**31.0**	15.0	41.0	141.0	228	BDI	NA	BDL	**41.0**	**10.0**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-8	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-9B	10/11/96	**45.0**	285.0	46.0	212.0	**588**	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	2.8	BDL	2.0	5	BDL	BDL	BDL	BDL	BDL
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-11	10/11/96	BDL	BDL	BDL	BDL	BDL	4.67	NA	BDL	BDL	BDL
	8/20/98	BDL	0.8	0.9	BDL	1.70	BDL	NA	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	2.2	1	BDL	BDL	3.2	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12R	9/18/02	**139**	BDL	BDL	BDL	**139**	1.3	NA	0.18	**11.1**	NA
MW-13	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**38,140**	**973**	NA	3.6	**456**	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	**38,800**	BDL	NA	BDL	BDL	**695**
	8/20/98	**7,225**	**12,612**	**1,244**	6,192	**27,273**	**158**	NA	**42.4**	**403**	**153**
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	**37,130**	15.2	459	**16.9**	**1040**	**1113**
	9/18/02	PRODUCT									
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	3.3	BDL	BDL	BDL	3.3	6.9	NA	BDL	2.1	NA
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	1.71	BDL	BDL	BDL	NA
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-17	10/11/96	BDL	BDL	BDL	BDL	BDL	1.71	NA	BDL	BDL	BDL
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NOT SAMPLED. Well was not located, and has likely been paved over.									
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	NOT SAMPLED. Well was not located. Area overgrown with thick brush, 3 to 5 ft. high									
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	1	BDL	BDL	1	BDL	NA	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-19R	9/18/02	BDL	BDL	BDL	BDL	BDL	36.9	NA	BDL	BDL	NA
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**39,740**	**1,800**	NA	BDL	BDL	**660**
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**48,950**	**1,500**	NA	**678**	**5150**	**519**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**50,130**	**1,010**	NA	**46**	**446**	NA
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-24	10/11/96	BDL	135	155	715	1,005	BDL	NA	BDL	BDL	**48**
	8/20/98	2.6	2	12	86	103	BDL	NA	0.18	**12.9**	**16.7**
	9/19/01	BDL	BDL	BDL	BDL	BDL	4.67	BDL	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	6.4	6.4	BDL	NA	BDL	1.6	NA
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**9,345**	**447**	NA	BDL	**480**	**420**
	8/20/98	**3,081**	19	6	3,046	**6,152**	**788**	NA	2.48	**393**	**144**
	9/19/01	3	5	2	42	52	BDL	17.6	BDL	1.09	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	**39,470**	BDL	NA	BDL	BDL	**655**
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**43,802**	**200**	NA	**45**	**728**	**367.4**
	9/19/01	**999**	**4,220**	**906**	4,660	**10,785**	BDL	346	BDL	**2070**	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
RBSL	–	*5*	*1,000*	*700*	*10,000*	–	*40*	–	*5*	*10*	*10*

Notes:

1 *Results shown in boldface type indicate concentrations which exceed the RBSL for that compound*
2 *BDL - below laboratory method detection limit*
3 *ug/l - micrograms per liter or parts per billion*
4 *NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis*
5 *NA- data not available*
6 *MTBE - Methyl-tert-butyl-ether*
7 *TMB- 1,3,5 Trimethylbenzene*
8 *EDB - 1,2- Dibromomethane*
9 *PAHs - Total Polunuclear Aromatic Hydrocarbons as 1-Methylnaphthalene, 2-methylnaphthalene, and the 5 South Carolina specified parameters, Benzo(a)anthracene, Benzo(b)fluoroanthene, Benzo(k)fluroanthene, Chrysene, and Dibenzo(a,h)anthracene.*
10 *RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document*

TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	DISSOLVED OXYGEN (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	METHANE (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-4R	9/18/2002	NS	NS	NS	NS	NS	NS	NS
MW-6	9/19/01	NA	0.18	12.90	BDL	BDL	6.6	0.131
	9/18/02	0.9	BDL	15.00	BDL	BDL	7	0.140
MW-7B	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS - NO ACCESS TO WELL, UNDER DUMPSTER						
MW-8	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-8R	9/18/02	1.86	BDL	10.0	0.1	BDL	5.6	0.082
MW-9B	9/19/01	NS	NS	NS	NS	NA	NS	0.012
	9/18/02	NS	NS	NS	NS	NS	NS	NS
MW-10	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
MW-11	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
MW-12	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-12R	9/18/02	1.36	3.5	5.0	0.35	BDL	5.6	0.049
MW-13	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-13R	9/18/02	1.0	BDL	12.0	4.0	BDL	6.1	0.010
MW-14B	9/19/01	NS	NS	NS	NS	NA	Sheen	0.017
	9/18/02	NS- PRODUCT IN WELL						
MW-15	9/19/01	NA	BDL	12.9	0.4	BDL	6.6	BDL
	9/18/02	1.05	BDL	14	BDL	BDL	6.1	0.110
MW-16	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
MW-17	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	WELL DESTROYED						

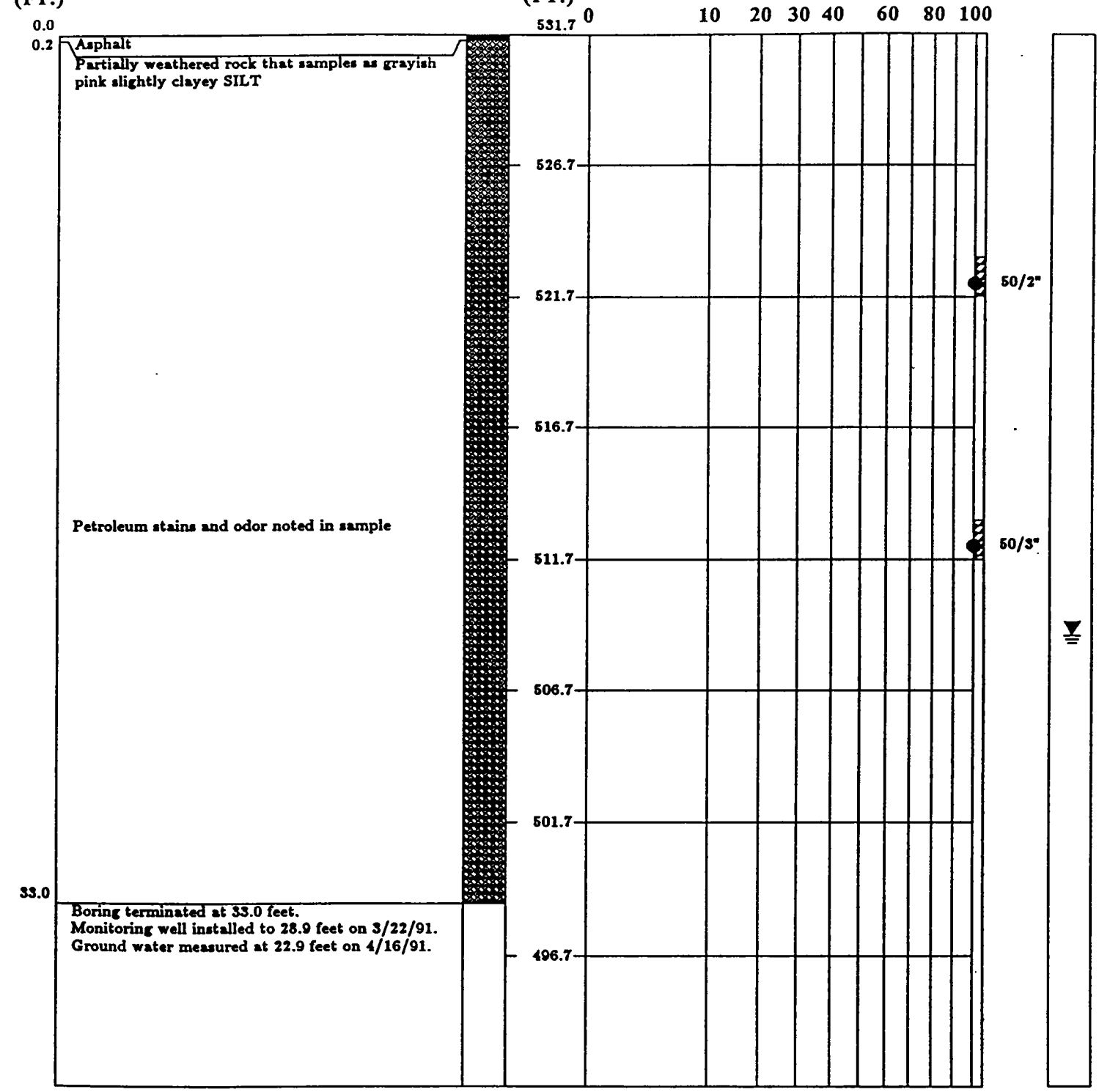
TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	DISSOLVED OXYGEN (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	METHANE (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-18	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	WELL LOST						
MW-19	9/19/01	NS	NS	NS	NS	NA	NS	NS
MW-19R	9/18/02	1.27	4.4	6	0.25	BDL	5.4	0.040
MW-20	9/19/01	NS	NS	NS	NS	NS	NS	0.006
MW-20R	9/18/02	1.19	620	10	0.55	BDL	5.6	0.510
MW-21	9/19/01	NA	4.21	3.64	BDL	BDL	NA	0.073
	9/18/02	1.63	11.1	9	BDL	BDL	5.4	2.210
MW-22	9/19/01	NA	1.9	2.29	BDL	BDL	6.8	7.970
	9/18/02	1.57	1.7	5	36	BDL	5.6	0.493
MW-24	9/19/01	NA	NS	NS	NS	NA	NS	NS
	9/18/02	1.01	0.4	6	BDL	BDL	6	0.310
MW-25	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
MW-26	9/19/01	NS	NS	NS	NS	NA	NS	0.068
	9/18/02	NS	NS	NS	NS	NS	NS	NS

Notes: 1 NA -not analyzed
2 NS - not sampled due to insufficient water unles otherwise noted.

GEOLOGIST LOGS



REMARKS:

No split spoon samples or Organic Vapor Analyzer (OVA) measurements obtained due to hardness of material encountered.

SEE KEY SHEET FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS USED ABOVE

TEST BORING RECORD

BORING NUMBER	MW-4
DATE DRILLED	March 22, 1991
PROJECT NUMBER	492-1-4051-01
PROJECT	CROWN STATION S.C. - 576
PAGE 1 OF 1	

LAW ENGINEERING

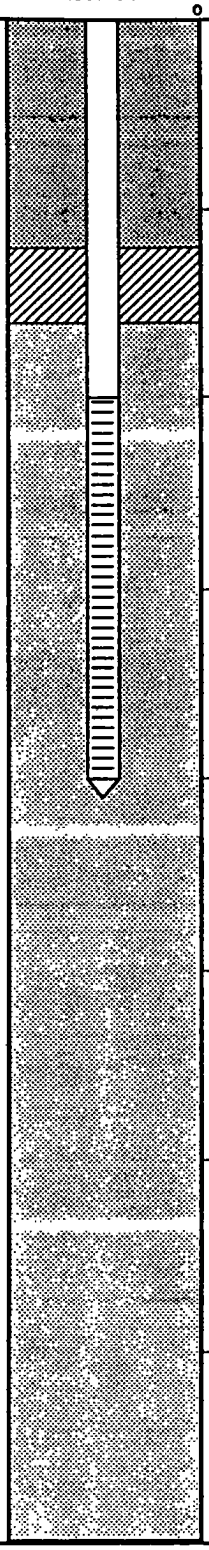
TEST BORING RECORD

DATUM ELEVATION: 103.30 Ft.

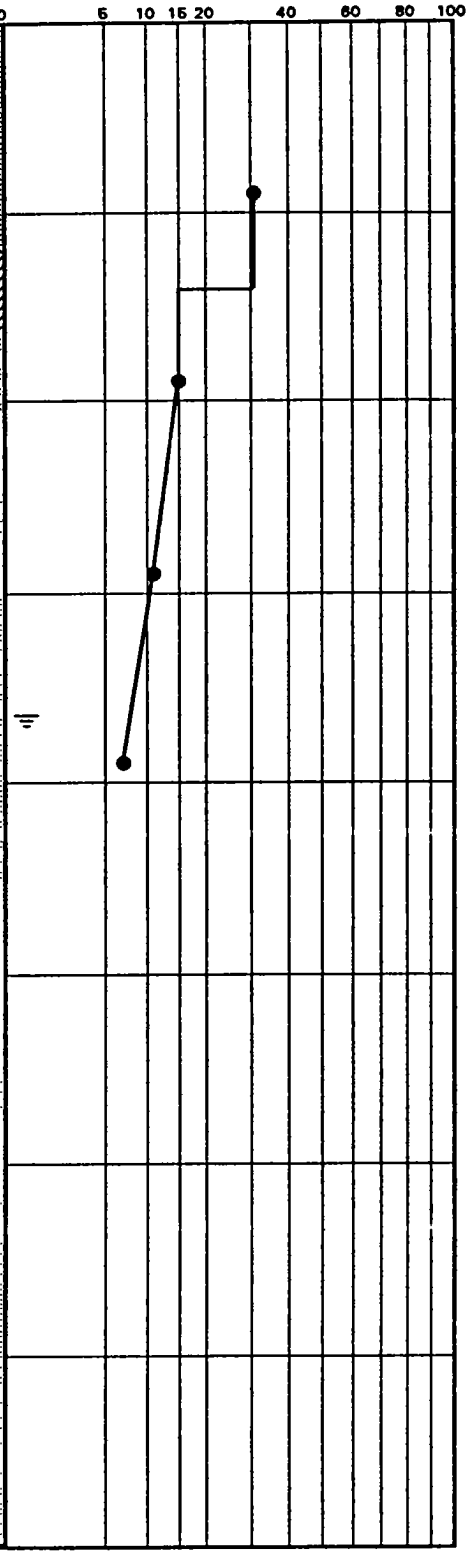
T:\DOSAPPS\PLOTLOG\LOGSICS8.PL3 CLP-29 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
103.3	0.0	Fill, Hard, Dark Red-Brown, Fine Sandy Clayey SILT.	2.2
98.3	5.0	Residuum, Stiff, Dark Red-Brown, Light Brown, Clayey, Very Fine Sandy SILT.	0.2
93.3	10.0	Stiff, Dark Red-Brown, Slightly Clayey Very Fine Sandy SILT with Numerous White Hairlined Veinlets.	ND
88.3	15.0	Firm, Dark Red-Brown, Slightly Clayey Very Fine Sandy SILT with Numerous White Hairlined Veinlets.	2.0
83.3	20.0	Boring Terminated at 20.0 Feet. Monitoring Well Installed to 20.0 Feet. Depth to Ground Water Measured at 18.37 on 6/10/93.	
78.3	25.0		
73.3	30.0		
68.3	35.0		
63.3	40.0		

WELL DIAGRAM



PENETRATION-BLOWS PER FOOT



REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-8
LOGGED BY	MSP	DATE STARTED	3-22-93
CHECKED BY	MDA	DATE COMPLETED	3-22-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 94.71 Ft.

T:\DOSAPPS\PLOTLOG\LOGS\CS12.PL3 CLP-27 12-07-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
94.7	0.0	Grass and Topsoil	
		Residuum - Hard, Light Brown, Brown Fine to Medium Sandy SILT.	
89.7	5.0		ND
		Hard, Red-Brown, White, Moist, Fine to Medium Sandy SILT.	
84.7	10.0		ND
		Very Hard, Light Brown, Brown, White, Fine to Medium Sandy SILT.	
79.7	15.0		ND
		Hard, Light Brown, White, Brown and Dark Red-Brown, Fine to Medium Sandy SILT.	
74.7	20.0		ND
		Very Stiff, Brown Fine Sandy SILT.	
		Boring Terminated at 24.0 Feet.	14
69.7	25.0	Monitoring Well Installed to 23.50 Feet. Depth to Ground Water Measured at 15.87 on 6/10/93.	
64.7	30.0		
59.7	35.0		
54.7	40.0		

WELL DIAGRAM

PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

REMARKS:

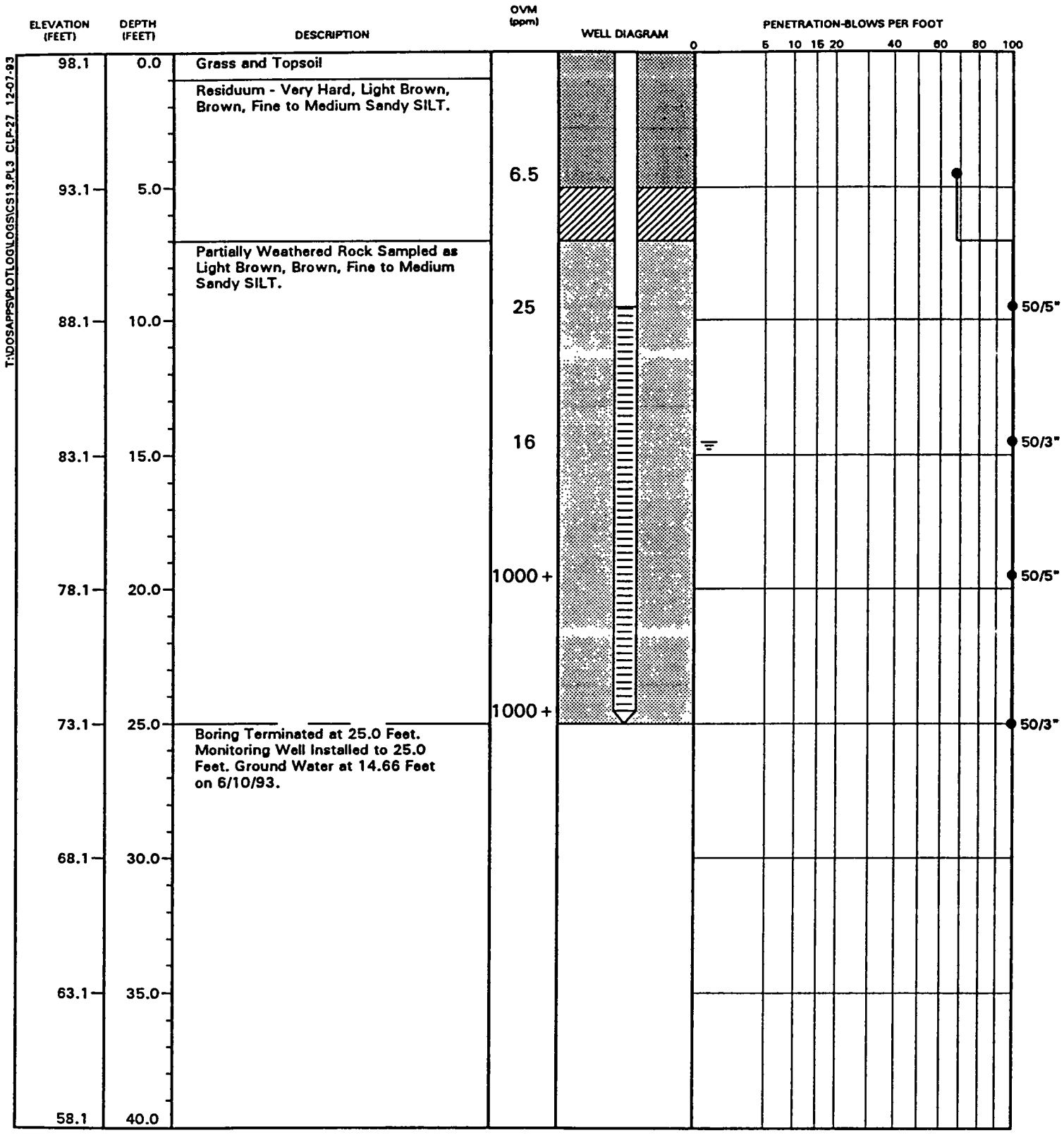
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-12
LOGGED BY	MSP	DATE STARTED	3-23-93
CHECKED BY	MDA	DATE COMPLETED	3-23-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 98.07 Ft.



REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	T. REID	BORING NUMBER	MW-13
LOGGED BY	MSP	DATE STARTED	3-23-93
CHECKED BY	MDA	DATE COMPLETED	3-23-93
		JOB NUMBER	499-2-4051-03

Law Engineering

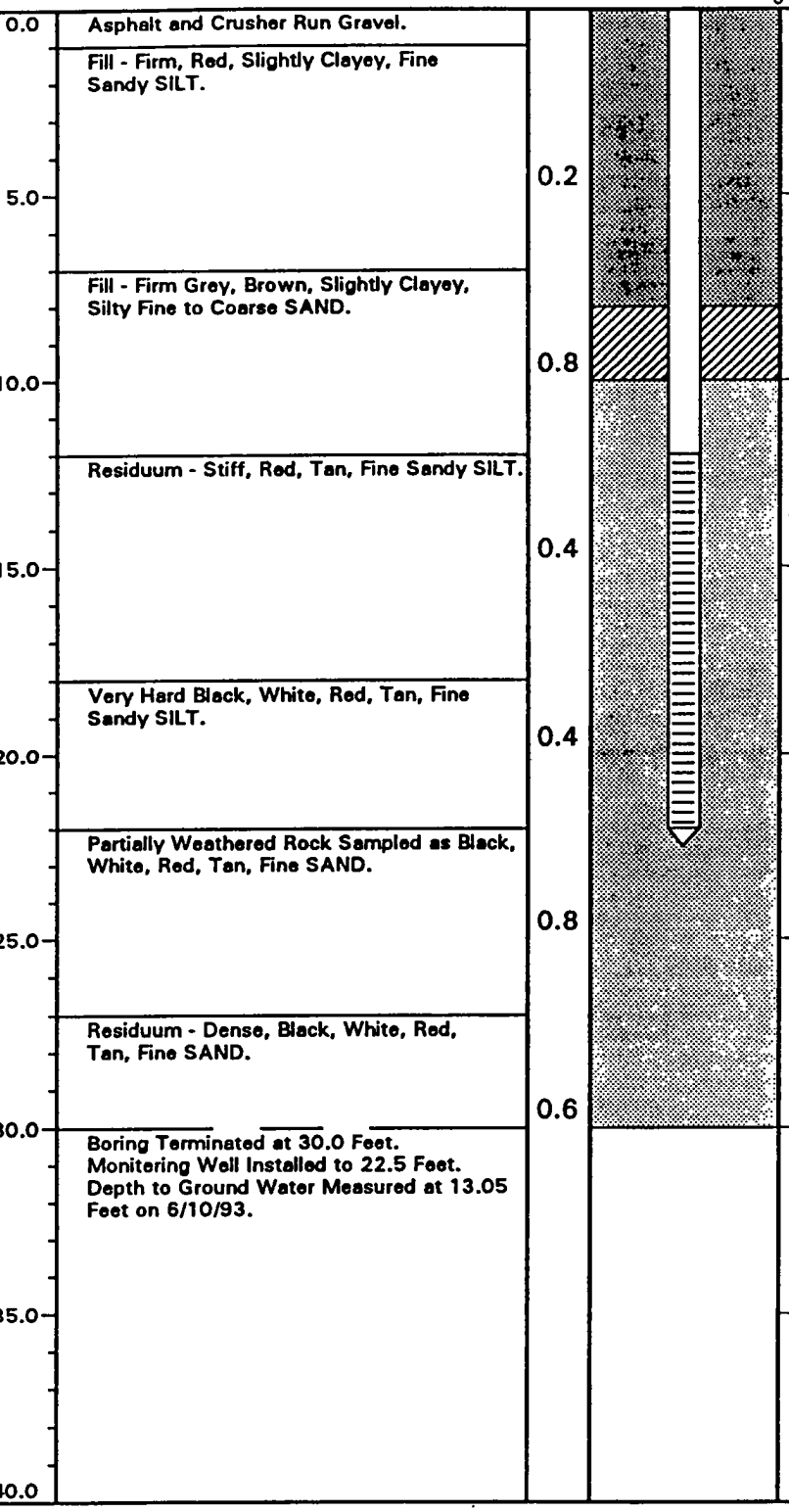
TEST BORING RECORD

DATUM ELEVATION: 93.94 Ft.

T:\DOSAPPS\PLOTLOG\LOGSICS18.PL3 CLP-23 12-08-93

ELEVATION (FEET)	DEPTH (FEET)	DESCRIPTION	OVM (ppm)
93.9	0.0	Asphalt and Crusher Run Gravel.	
		Fill - Firm, Red, Slightly Clayey, Fine Sandy SILT.	0.2
88.9	5.0		
		Fill - Firm Grey, Brown, Slightly Clayey, Silty Fine to Coarse SAND.	0.8
83.9	10.0		
		Residuum - Stiff, Red, Tan, Fine Sandy SILT.	0.4
78.9	15.0		
		Very Hard Black, White, Red, Tan, Fine Sandy SILT.	0.4
73.9	20.0		
		Partially Weathered Rock Sampled as Black, White, Red, Tan, Fine SAND.	0.8
68.9	25.0		
		Residuum - Dense, Black, White, Red, Tan, Fine SAND.	0.6
63.9	30.0		
		Boring Terminated at 30.0 Feet. Monitering Well Installed to 22.5 Feet. Depth to Ground Water Measured at 13.05 Feet on 6/10/93.	
58.9	35.0		
53.9	40.0		

WELL DIAGRAM



PENETRATION-BLOWS PER FOOT

0 5 10 15 20 40 60 80 100

50/6"

REMARKS:

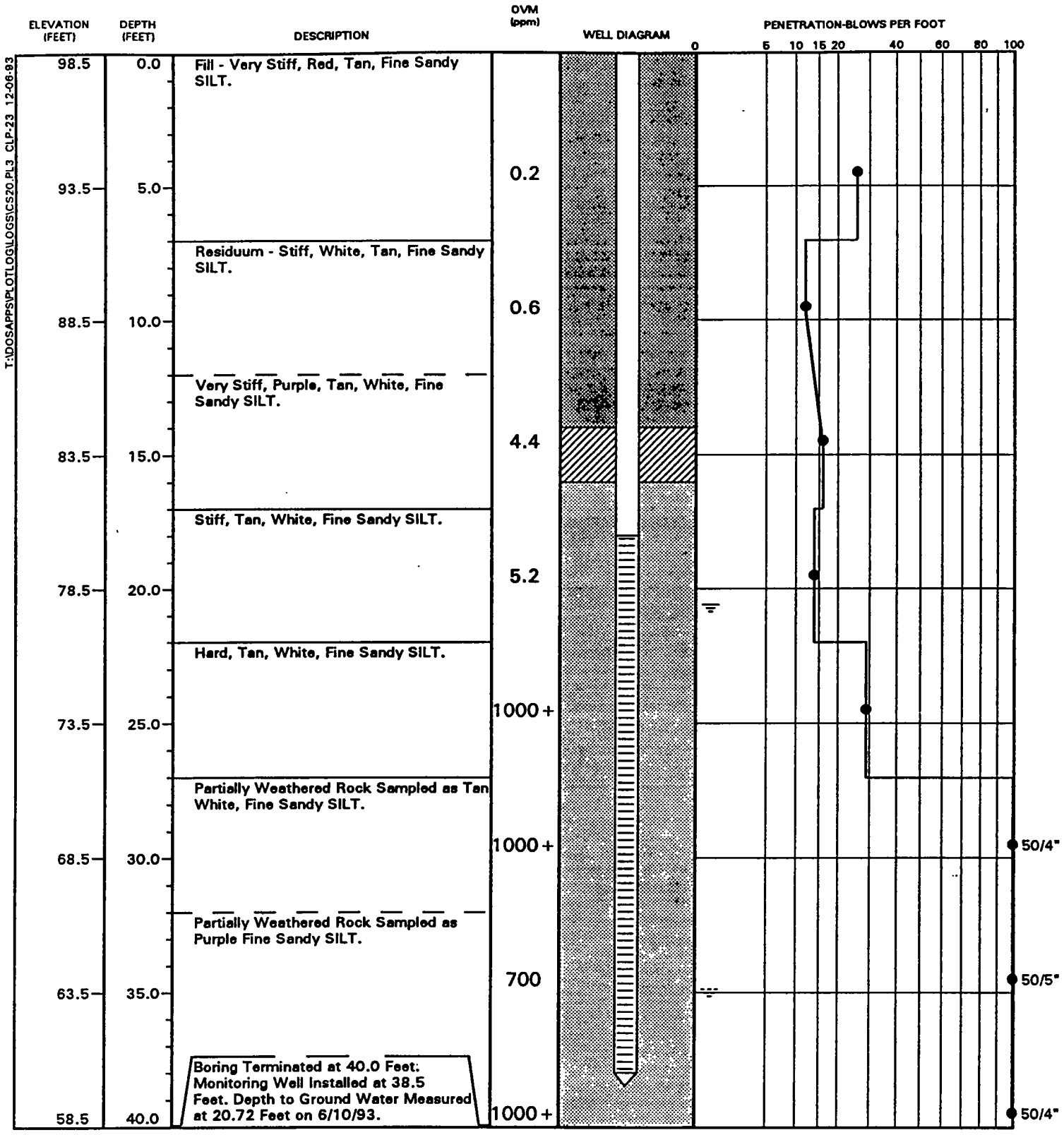
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-19
LOGGED BY	TEV	DATE STARTED	6-9-93
CHECKED BY	MDA	DATE COMPLETED	6-9-93
		JOB NUMBER	499-2-4051-03

Law Engineering

TEST BORING RECORD

DATUM ELEVATION: 98.61 Ft.



REMARKS:
See Key Sheet For Explanation of Symbols And Abbreviations Used.

DRILLED BY	STONE	BORING NUMBER	MW-20
LOGGED BY	TEV	DATE STARTED	6-9-93
CHECKED BY	MDA	DATE COMPLETED	6-10-93
		JOB NUMBER	499-2-4051-03

Law Engineering

MW-1R

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown S.C. 576
Address: 201 North (last) Mine St (first)
City: McCormick State: S.C. Zip:
Telephone: Work: Home: McCormick

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C. 576
Street Address: 201 Mine St
City: McCormick S.C. Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**
Crown S.C. 576

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0-30.5		
Red Silty		
SAPRolite + Rock		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: 06443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

8. WELL DEPTH (completed) 30.5 ft. Date Started: 9-9-02 Date Completed: 9-9-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☑ Bored
☐ Dug ☐ Air Rotary ☐ Driven
☐ Cable tool ☐ Other

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 20.5 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: 010 Length: 10'
Set Between: 20.5 ft. and 30.5 ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL DRY ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 18.5 ft. to 30.5 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 16.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy LLemire CERT. NO.: 1423
Address: (SAEDACCO) 10401 John Price Rd Charlotte NC. 28273
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy LLemire Authorized Representative Date: 9-9-02

DHEC 1903 (03/2002) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown S.C. 576
Address: 201 North (last) Mine St (first)
City: McCormick State: S.C. Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C. 576
Street Address: 201 North Mine St
City: McCormick S.C. Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
Crown S.C.

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0 - 40		
Red Silty		
Sapelite		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: 06443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

8. WELL DEPTH (completed) 40 ft. Date Started: 9-9-02 Date Completed: 9-9-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

10. CASING: ☐ Threaded ☐ Welded
Diam.: 2"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: 010 Length: 15'
Set Between: 25 ft. and 40 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 35.94 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☐ Yes ☐ No
Installed from 23 ft. to 40 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☐ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 21 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy Llemire CERT. NO.: 1423
Address: (SAEDACCO) 10401 John Price Rd Charlotte N.C. 28273
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy Llemire Date: 9-9-02
Authorized Representative

DHEC 1903 (03/2002)

COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown SC 576
Address: 201 (last) North Mine (first) St
City: McCormick State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C. 576
Street Address: 201 North Mine St
City: McCormick S.C. Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:
Crown SC - 576

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0-45		
Red Silty		
Saperlite + Rock		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: 06443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

8. WELL DEPTH (completed) 45 ft. Date Started: 9-10-02 Date Completed: 9-10-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☑ Bored
☐ Dug ☐ Air Rotary ☐ Driven
☐ Cable tool ☐ Other

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 30 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 30 ft. and 45 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 30.66 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 28 ft. to 45 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 26 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy L Lemire CERT. NO.: 1423
Address: (SAEDACCO) 10401 John Price Rd Charlotte N.C. 28273
Telephone No.: 1-800-849-0333 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy L Lemire Date: 9-10-02
Authorized Representative

DHEC 1903 (03/2002) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown S.C. 576 (last) (first)
Address: 201 North Mine St
City: McCormick State: S.C. Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY:
Name: Crown S.C. 576
Street Address: 201, North Mine St
City: McCormick S.C. Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: Crown S.C. 576 **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0-44		
Red Silty		
Saprolite + Rock		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: 06443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☒ Monitor Well ☐ Replacement

8. WELL DEPTH (completed) 44 ft. Date Started: 9-10-02 Date Completed: 9-10-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☒ Bored
☐ Dug ☐ Air Rotary ☐ Driven
☐ Cable tool ☐ Other

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 29 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 29 ft. and 44 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 31.22 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 22 ft. to 49.5 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From _____ ft. to _____ ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Ricky L Lemire CERT. NO.: 1423
Address: BAEDACO 1940 John Price Rd Charlotte NC. 28273
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Ricky L Lemire Authorized Representative Date: 9-10-02

DHEC 1903 (03/2002) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown S.C. 576
(last) (first)
Address: 201 North Mine St
City: McCormick State: S.C. Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C. 576
Street Address: 201 North Mine St
City: McCormick S.C. Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: Crown S.C. 576 **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0-45		
Red Silty Saperlite		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: 06443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ ~~Monitor Well~~ ☐ Replacement

8. WELL DEPTH (completed) 45 ft. Date Started: 9-9-02
Date Completed: 9-9-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☒ Bored
☐ Dug ☐ Air Rotary ☐ Driven
☐ Cable tool ☐ Other

10. CASING: ☐ ~~Threaded~~ ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 30 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 30 ft. and 45 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 32.40 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 28 ft. to 45 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 26 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy Llemire CERT. NO.: 1423
Address: (SAEDACCO) 10401 John Price Rd Charlotte NC. 28273
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy Llemire Date: 9-9-02
Authorized Representative

DHEC 1903 (03/2002) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

MW COR

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION: Name: Crown S.C. 576 (last) (first)
Address: 201 North Main St
City: McCormick State: S.C. Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C. 576
Street Address: 201 North Main St
City: McCormick Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: Crown S.C. **PUBLIC SYSTEM NUMBER:** 576

4. ABANDONMENT: ☐ Yes ☐ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0 - 49.5 Red Silty Saprolite		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. PERMIT NUMBER: D6443

7. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

8. WELL DEPTH (completed) 49.5 ft. Date Started: 9-9-02 Date Completed: 9-9-02

9. TYPE ☐ Mud Rotary ☐ Jetted ☑ Bored
☐ Dug ☐ Air Rotary ☐ Driven
☐ Cable tool ☑ Other

10. CASING: ☐ Threaded ☐ Welded
Diam.: 2"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 34.5 ft. depth
0 in. to 34.5 ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN
Type: PVC Diam.: 2"
Slot/Gauge: 010 Length: 15
Set Between: 34.5 ft. and 49.5 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 35.10 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 32.5 ft. to 49.5 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☑ Yes ☐ No
☑ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 30.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy Llemire CERT. NO.: 1423
Address: (SAEDACCO) 10401 John Price Rd 28273
Charlotte N.C.
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy Llemire Date: 9-9-02
Authorized Representative

DHEC 1903 (03/2002) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

GROUND WATER ANALYTICAL DATA

ACCESS
ANALYTICAL, INC.

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-08R
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-01
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 11:30:00 AM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	93	%	EPA 8260		9/25/2002 3:17:00 PM	mholmberg
(Surr) BFB	88	%	EPA 8260		9/25/2002 3:17:00 PM	mholmberg
(Surr) Toluene-d8	98	%	EPA 8260		9/25/2002 3:17:00 PM	mholmberg
Benzene	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/25/2002 3:17:00 PM	mholmberg
Methyl Tert-butyl Ether	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
Naphthalene	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 3:17:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	0.11	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	BDL	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.082	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	10	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-01
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-08R	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 11:30:00 AM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-20R
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-02
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 2:25:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	97	%	EPA 8260		9/26/2002 10:46:00 PM	mholmberg
(Surr) BFB	92	%	EPA 8260		9/26/2002 10:46:00 PM	mholmberg
(Surr) Toluene-d8	92	%	EPA 8260		9/26/2002 10:46:00 PM	mholmberg
Benzene	14500	ug/L	EPA 8260	500	9/26/2002 10:46:00 PM	mholmberg
Ethylbenzene	2040	ug/L	EPA 8260	50	9/26/2002 10:46:00 PM	mholmberg
m-&p-Xylene	5560	ug/L	EPA 8260	100	9/26/2002 10:46:00 PM	mholmberg
Methyl Tert-butyl Ether	1010	ug/L	EPA 8260	50	9/26/2002 10:46:00 PM	mholmberg
Naphthalene	446	ug/L	EPA 8260	50	9/26/2002 10:46:00 PM	mholmberg
o-Xylene	3030	ug/L	EPA 8260	50	9/26/2002 10:46:00 PM	mholmberg
Toluene	25000	ug/L	EPA 8260	500	9/26/2002 10:46:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	46	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	0.55	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	620	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.510	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	10	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-02
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-20R	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 2:25:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
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Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-19R
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-03
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 3:05:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	98	%	EPA 8260		9/25/2002 4:54:00 PM	mholmberg
(Surr) BFB	95	%	EPA 8260		9/25/2002 4:54:00 PM	mholmberg
(Surr) Toluene-d8	102	%	EPA 8260		9/25/2002 4:54:00 PM	mholmberg
Benzene	BDL	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/25/2002 4:54:00 PM	mholmberg
Methyl Tert-butyl Ether	36.9	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
Naphthalene	BDL	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 4:54:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	0.25	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	4.4	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.040	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	6	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-03
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-19R	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 3:05:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-24
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-04
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 3:55:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	96	%	EPA 8260		9/25/2002 5:27:00 PM	mholmberg
(Surr) BFB	93	%	EPA 8260		9/25/2002 5:27:00 PM	mholmberg
(Surr) Toluene-d8	97	%	EPA 8260		9/25/2002 5:27:00 PM	mholmberg
Benzene	BDL	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
m-&p-Xylene	3.6	ug/L	EPA 8260	2	9/25/2002 5:27:00 PM	mholmberg
Methyl Tert-butyl Ether	BDL	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
Naphthalene	1.6	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
o-Xylene	2.8	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 5:27:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	BDL	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	0.4	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.310	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	6	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-04
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-24	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 3:55:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-05
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-22	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 5:00:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	98	%	EPA 8260		9/25/2002 5:59:00 PM	mholmberg
(Surr) BFB	94	%	EPA 8260		9/25/2002 5:59:00 PM	mholmberg
(Surr) Toluene-d8	103	%	EPA 8260		9/25/2002 5:59:00 PM	mholmberg
Benzene	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/25/2002 5:59:00 PM	mholmberg
Methyl Tert-butyl Ether	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
Naphthalene	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 5:59:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	36.0	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	1.7	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.493	mg/L	EPA 7421	0.005	10/1/2002 11:07:00 AM	rmarshall
Sulfate by EPA 375.4 for RCRA						
Sulfate	5	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-05
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-22	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 5:00:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-21
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-06
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 5:30:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	96	%	EPA 8260		9/25/2002 6:32:00 PM	mholmberg
(Surr) BFB	94	%	EPA 8260		9/25/2002 6:32:00 PM	mholmberg
(Surr) Toluene-d8	99	%	EPA 8260		9/25/2002 6:32:00 PM	mholmberg
Benzene	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/25/2002 6:32:00 PM	mholmberg
Methyl Tert-butyl Ether	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
Naphthalene	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 6:32:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	BDL	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	11.1	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	2.21	mg/L	EPA 7421	0.005	9/30/2002 9:16:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	9	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-06
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-21	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 5:30:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-12R
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-07
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 10:45:00 AM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	96	%	EPA 8260		9/26/2002 4:17:00 PM	mholmberg
(Surr) BFB	92	%	EPA 8260		9/26/2002 4:17:00 PM	mholmberg
(Surr) Toluene-d8	97	%	EPA 8260		9/26/2002 4:17:00 PM	mholmberg
Benzene	139	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/26/2002 4:17:00 PM	mholmberg
Methyl Tert-butyl Ether	1.3	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
Naphthalene	11.1	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/26/2002 4:17:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	0.18	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	0.35	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	3.5	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.049	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	5	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-07
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-12R	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 10:45:00 AM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-06
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-08
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 4:05:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	104	%	EPA 8260		9/26/2002 11:18:00 PM	mholmberg
(Surr) BFB	110	%	EPA 8260		9/26/2002 11:18:00 PM	mholmberg
(Surr) Toluene-d8	111	%	EPA 8260		9/26/2002 11:18:00 PM	mholmberg
Benzene	15200	ug/L	EPA 8260	500	9/26/2002 11:18:00 PM	mholmberg
Ethylbenzene	291	ug/L	EPA 8260	50	9/26/2002 11:18:00 PM	mholmberg
m-&p-Xylene	798	ug/L	EPA 8260	100	9/26/2002 11:18:00 PM	mholmberg
Methyl Tert-butyl Ether	13500	ug/L	EPA 8260	500	9/26/2002 11:18:00 PM	mholmberg
Naphthalene	356	ug/L	EPA 8260	50	9/26/2002 11:18:00 PM	mholmberg
o-Xylene	1480	ug/L	EPA 8260	50	9/26/2002 11:18:00 PM	mholmberg
Toluene	684	ug/L	EPA 8260	150	9/26/2002 11:18:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	1.5	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	BDL	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	BDL	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.140	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	15	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-08
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-06	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 4:05:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-15
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-09
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 4:15:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	94	%	EPA 8260		9/25/2002 3:16:00 PM	mholmberg
(Surr) BFB	98	%	EPA 8260		9/25/2002 3:16:00 PM	mholmberg
(Surr) Toluene-d8	98	%	EPA 8260		9/25/2002 3:16:00 PM	mholmberg
Benzene	3.3	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
Ethylbenzene	BDL	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
m-&p-Xylene	BDL	ug/L	EPA 8260	2	9/25/2002 3:16:00 PM	mholmberg
Methyl Tert-butyl Ether	6.9	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
Naphthalene	2.1	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
o-Xylene	BDL	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
Toluene	BDL	ug/L	EPA 8260	1	9/25/2002 3:16:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	BDL	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	BDL	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	BDL	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.110	mg/L	EPA 7421	0.005	9/30/2002 9:12:00 AM	lstowe
Sulfate by EPA 375.4 for RCRA						
Sulfate	14	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-09
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-15	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 4:15:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Customer: Earth Management Systems
Attn: Gene Partin
Address: 3025-A McNaughton Drive
Columbia, SC 29223
Project: SC-576
Sample Lbl: MW-13R
Collector: Dalton Reames

Customer ID: EMS
Order ID: 020920/03
Lab Sample ID: 020920/03-10
Job ID: J0303
Customer Sample ID:
Matrix: Liquid
Collected: 9/18/2002 12:05:00 PM
Received: 9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst
Methane (Liquid Phase Concentration) by GC-FID						
Methane	BDL	ug/L	Kerr	10	9/23/2002 1:00:00 PM	kmiller
BTEX, Naphthalene, MTBE by GC/MS for RCRA						
(Surr) 1,4-difluorobenzene	98	%	EPA 8260		9/26/2002 11:50:00 PM	mholmberg
(Surr) BFB	92	%	EPA 8260		9/26/2002 11:50:00 PM	mholmberg
(Surr) Toluene-d8	92	%	EPA 8260		9/26/2002 11:50:00 PM	mholmberg
Benzene	5010	ug/L	EPA 8260	50	9/26/2002 11:50:00 PM	mholmberg
Ethylbenzene	1990	ug/L	EPA 8260	50	9/26/2002 11:50:00 PM	mholmberg
m-&p-Xylene	9310	ug/L	EPA 8260	1000	9/26/2002 11:50:00 PM	mholmberg
Methyl Tert-butyl Ether	973	ug/L	EPA 8260	50	9/26/2002 11:50:00 PM	mholmberg
Naphthalene	456	ug/L	EPA 8260	50	9/26/2002 11:50:00 PM	mholmberg
o-Xylene	3230	ug/L	EPA 8260	50	9/26/2002 11:50:00 PM	mholmberg
Toluene	18600	ug/L	EPA 8260	500	9/26/2002 11:50:00 PM	mholmberg
EDB by 8011 for RCRA at STL						
Ethylene Dibromide	3.6	ug/L	EPA 8011	0.02	9/23/2002	#96023
Ferrous Iron by Colorimetric for RCRA						
Ferrous Iron	4.00	mg/L	SM 3500-Fe D	0.05	9/25/2002 3:30:00 PM	lstowe
Nitrate/Nitrite by EPA 353.1 for RCRA						
Nitrate/Nitrite	BDL	mg/L	EPA 353.1	0.1	9/24/2002 9:40:00 AM	jmckinzie
Lead by GFAA for RCRA						
Lead	0.0101	mg/L	EPA 7421	0.005	10/1/2002 11:07:00 AM	rmarshall
Sulfate by EPA 375.4 for RCRA						
Sulfate	12	mg/L	EPA 375.4	5	9/27/2002 10:30:00 AM	lstowe

Customer:	Earth Management Systems	**Customer ID:**	EMS
Attn:	Gene Partin	**Order ID:**	020920/03
Address:	3025-A McNaughton Drive	**Lab Sample ID:**	020920/03-10
	Columbia, SC 29223	**Job ID:**	J0303
Project:	SC-576	**Customer Sample ID:**	
Sample Lbl:	MW-13R	**Matrix:**	Liquid
Collector:	Dalton Reames	**Collected:**	9/18/2002 12:05:00 PM
		Received:	9/20/2002 3:15:17 PM

Compounds:	Results	Units	Method	RDL	Analysis Date/Time	Analyst

COMPANY REPRESENTATIVE

REPORT COMMENTS:

BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight
Unless otherwise noted in analyst section, all work is performed by C.A.L., 3005 Broad River Road, Columbia, SC 29210 USA (SCDHEC Lab Certification # 40001)
Unless otherwise noted, samples submitted for EPA 5035 were collected, preserved, and analyzed in accordance with all methodology requirements.

COMMENTS:

Access Analytical - Chain of Custody Record

Laboratory ID: ___ _____

Project Submission #: _____ RUSH # _____ PO #: 245-036

Company Name: Earth Management

Address: 3025 A McLaughlin Rd.

City: Columbia State: SC Zip: 29223

Project Name: SC-576

Report To: Gene Partin

Sampled By (print): Dalton Reames

Preservative (*see codes below): 1 0 0 0 2 0

↓ REQUESTED LAB ANALYSIS: ↓

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	BTEX, MTBE	EDB by 8011*	Methane	Nitrate/Sulfate	Lead	Ferrous Iron	NOTES / COMMENTS
01 MW-8R	9/18/02	1130	GW	9	X	X	X	X	X	X	*EDB sent out
02 MW-20R	9/18/02	1425									
03 MW-19R	9/18/02	1505									
04 MW-24	9/18/02	1555									
05 MW-22	9/18/02	1700									
06 MW-21	9/18/02	1730									
07 MW-12R	9/19/02	1045									
08 MW-6	9/19/02	1605									
09 MW-15	9/19/02	1615									
10 MW-13R	9/19/02	1205									

ACCESS ANALYTICAL, INC.

1248 Lake Murray Blvd
Irmo, SC 29063

Phone (803) 781-4243
Fax 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Turnaround Time:

✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
___ Yes
___ No

Project Location:
✓ SC
___ NC
___ Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	9/20/02	14:45	Cheryl Barr
Cheryl Barr	9/20/02	15:15	

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

Access Analytical, Inc.
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Pink Copy - Client Copy

FIELD DATA INFORMATION SHEETS

D H E C

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): ~~4/19/01~~

Field Personnel: D. Reames

General Weather Conditions: ~~Overcast / Warm / Humid~~ Cool

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576

Facility ID#: _____ Well #: MW-1

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet

Depth to Ground Water (DGW) ~~_____~~ 0 feet

Total Well Depth (TWD) 30.0 feet

Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals

3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: well Dry

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D Pearman
General Weather Conditions: Mostly Sunny / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-2

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 8 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Well Tip - Manhole cover cracked - letting in rain water

D H E C

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02

Field Personnel: D James

General Weather Conditions: _____

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576

Facility ID#: _____ Well #: MW-4R

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet

Depth to Ground Water (DGW) 8 feet

Total Well Depth (TWD) 30.5 feet

Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals

3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 Inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: No Water

DHEC

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D Reames
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-5

Well Diameter (D): ~~4~~ 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) ~~13.86~~ feet Ø
Total Well Depth (TWD) ~~18.45~~ feet 32.82
Length of Water Column (LWC = TWD- DGW) ~~5.59~~ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = ~~3.65~~ gals
3 Casing Volume 3 X CV = ~~10.96~~ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Well Dry. Mud at bottom has petrol Smell
~~well cap missing~~

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D Reaves
General Weather Conditions: Partly Sunny / Hot/Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-6

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 33.15 feet
Total Well Depth (TWD) 58.0 feet
Length of Water Column (LWC = TWD- DGW) 24.85 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 4.05 gals
3 Casing Volume 3 X CV = 12.15 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		4.0	8.0	12.0				
Time (military)								
pH (s.u.)	6.1	7.9	7.3	7.0				
Specific Cond. (µmhos/cm)	529 → ~~588~~	346	287	249				
Water Temperature (°C)	22.5	22.5	22.9	22.6				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (If required)								

Remarks: DO: .90 ST = 1605

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: _____

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-7B

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) _____ feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 Inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Could Not Access. Dumpster is on top.

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/18/02
Field Personnel: D. Reames
General Weather Conditions: ~~Cloudy~~ Overcast/Warm/Humid
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-8R

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 35.94 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) 4.06 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = .66 gals
3 Casing Volume 3 X CV = 2.0 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		~~.75~~	1.25					
Time (military)								
pH (s.u.)	6.0	5.7	5.6					
Specific Cond. (µmhos/cm)	53	50	45					
Water Temperature (°C)	20.2	19.9	19.6					
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO= 1.86 ST 1130 Well Dry after 1.25 gal.

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time
_____	_____	_____	_____

Facility Name: SC-576
Facility ID#: _____ Well #: MW-9B

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 0 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Dry

D H E C

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-10

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X $(D/2)^2$ for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 0 feet
Total Well Depth (TWD) 19.0 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 Inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Dry

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: Overcast / Warm / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-11

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 8 feet
Total Well Depth (TWD) 15.0 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Well Dry

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: overcast / warm / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-12R

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 30.66 feet
Total Well Depth (TWD) 45.0 feet
Length of Water Column (LWC = TWD- DGW) 14.34 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 2.33 gals
3 Casing Volume 3 X CV = 7.01 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 7.6 gals

* If free product is present over 1/8 Inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		2.25	5.5	7.0				
Time (military)								
pH (s.u.)	5.9	5.8	5.9	5.6				
Specific Cond. (µmhos/cm)	122	129	125	127				
Water Temperature (°C)	22.6	21.8	22.0	22.2				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (If required)								

Remarks: DO = 1.36 ST = 1045

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-57C
Facility ID#: _____ Well #: MW-13R

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 31.22 feet
Total Well Depth (TWD) 44.0 feet
Length of Water Column (LWC = TWD- DGW) 12.78 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 2.08 gals
3 Casing Volume 3 X CV = 6.25 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		2.0	4.0	6.25				
Time (military)								
pH (s.u.)	6.0	6.1	6.1	6.1				
Specific Cond. (µmhos/cm)	143	143	143	142				
Water Temperature (°C)	23.6	22.7	23.2	22.7				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO=1.00 ST=1205

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: overcast/warm/Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time
_____	_____	_____	_____

Facility Name: SC-576
Facility ID#: _____ Well #: MW-14B

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: .63 feet Product at 35.25
Depth to Ground Water (DGW) ~~35.88~~ 35.25 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) 3.83 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = .62 gals
3 Casing Volume 3 X CV = 1.87 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: No Sample Petrol odor * (.63) Product in Well

DHEC

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reamer
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-15

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 32.86 feet
Total Well Depth (TWD) 130.0 feet
Length of Water Column (LWC = TWD - DGW) 97.14 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 15.83 gals
3 Casing Volume 3 X CV = 47.50 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		16.0	32.0	48.0				
Time (military)								
pH (s.u.)	6.3	6.0	6.2	6.1				
Specific Cond. (µmhos/cm)	130	142	129	137				
Water Temperature (°C)	23.9	24.0	21.6	21.4				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO-105 ST-1615

D H E C
PROMOTE PROTECT PROVIDE

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Reames
General Weather Conditions: Mostly Cloudy / Hot / Humid

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-16

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0 163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 22.45 feet
Total Well Depth (TWD) 23.5 feet
Length of Water Column (LWC = TWD- DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 Inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Only a trace of H2O in well. Not enough to Sample. Man Hole cover housing bent and loose. Probably rain water in well

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/18/02
Field Personnel: D. Ramos
General Weather Conditions: Overcast / Humid / Warm Wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-19R

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 32.40 feet
Total Well Depth (TWD) 45.0 feet
Length of Water Column (LWC = TWD- DGW) 12.6 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 2.05 gals
3 Casing Volume 3 X CV = 6.16 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 Inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		2.0	4.0	6.25				
Time (military)								
pH (s.u.)	5.8	5.6	5.6	5.4				
Specific Cond. (µmhos/cm)	238	206	193	192				
Water Temperature (°C)	19.2	19.4	19.2	19.2				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 1.27 ST = 1505

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/19/02
Field Personnel: D. Fowler
General Weather Conditions: overcast/Pleasant/Humid wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-20R

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 35.10 feet
Total Well Depth (TWD) 49.5 feet
Length of Water Column (LWC = TWD- DGW) 14.4 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 2.34 gals
3 Casing Volume 3 X CV = 7.04 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 Inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		2.25	5.0	7.0				
Time (military)								
pH (s.u.)	5.7	5.6	5.6	5.6				
Specific Cond. (µmhos/cm)	174	162	158	162				
Water Temperature (°C)	20.5	20.5	20.4	20.5				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 1.19 ST - 1425

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Date (mm/dd/yy): 9/18/02
Field Personnel: D. Reames
General Weather Conditions: Overcast / warm / Humid wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-21

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 38.09 feet
Total Well Depth (TWD) 40.3 feet
Length of Water Column (LWC = TWD - DGW) 2.21 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = .36 gals
3 Casing Volume 3 X CV = 1.0 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 Inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)	5.4							
Specific Cond. (µmhos/cm)	186							
Water Temperature (°C)	17.8							
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 1.63 ST = 1730 Only enough H2O for initial readings
& samples

D H E C

PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/18/02
Field Personnel: D. Reaves
General Weather Conditions: Overcast / warm / Humid / Wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	_____	serial no.	_____
pH=4.0	_____	standard	_____
pH=7.0	_____	standard	_____
pH=10.0	_____	standard	_____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-22

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 37.98 feet
Total Well Depth (TWD) 42.0 ~~40.0~~ feet
Length of Water Column (LWC = TWD - DGW) 2.02 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = .32 gals
3 Casing Volume 3 X CV = .96 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required.

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)	5.6							
Specific Cond. (µmhos/cm)	60							
Water Temperature (°C)	18.1							
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (If required)								

Remarks: DO = 1.57 SC = 1700 Only enough H_2O for initial readings
& Samples

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/18/02
Field Personnel: D. Reames
General Weather Conditions: Overcast / Warm / Humid wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-526
Facility ID#: _____ Well #: MW-[redacted]24

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 32.08 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) 7.92 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 1.29 gals
3 Casing Volume 3 X CV = 3.87 gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol 1.75	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		1.25	~~3.50~~	~~4.0~~				
Time (military)								
pH (s.u.)	6.0	6.0	6.0					
Specific Cond. (µmhos/cm)	171	153	148					
Water Temperature (°C)	21.7	21.9	21.8					
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 1.01 SC = 1555 well dry after 1.75 gal.

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/18/02
Field Personnel: Gary D. Reames
General Weather Conditions: Overcast / warm / Humid / wet
Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-25

Well Diameter (D): 2 Inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 Inch well C = 0.163
for a 4 Inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 29.41 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) .59 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO= ST= Not enough water to sample

D H E C
PROMOTE PROTECT PROSPER

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 9/18/02
Field Personnel: D Rowe
General Weather Conditions: Overcast/Warm/Humid/Wet

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-2S

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 30.05 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals.

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)								
Time (military)								
pH (s.u.)								
Specific Cond. (µmhos/cm)								
Water Temperature (°C)								
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: Not Enough water to sample * Petroleum Odor on water Meter
1609

WASTE DISPOSAL MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.:

Manifest Document No.: GK4822

2. Page 1 of

3. Generator's Name and Mailing Address: FORMER CROWN SC-576
HWY 28 AND 5TH AVE.
MCCORMICK, SC

4. Generator's Phone ( )

5. Transporter 1 Company Name: G&K TANK SERVICES

6. US EPA ID Number:

A. Transporter's Phone: 803-481-4593

7. Transporter 2 Company Name:

8. US EPA ID Number:

B. Transporter's Phone:

9. Designated Facility Name and Site Address: G&K TANK SERVICES
HWY 76/378 WEST
SUMTER, SC 29154

10. US EPA ID Number:

C. Facility's Phone: 803-481-4593

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON HAZARDOUS PETROLEUM CONTAMINANTED SOIL	06	DR		
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EARTH MANAGEMENT
P.O. BOX 24287
COLUMBIA, SC

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name | Signature | Month | Day | Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: FRANK Tidwell Jr. | Signature: Frank Tidwell | Month: 09 | Day: 27 | Year: 02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

~~Printed~~/Typed Name: S. Collett | Signature: S. Collett | Month: 9 | Day: 27 | Year: 02

GENERATOR — TRANSPORTER — FACILITY

ORIGINAL - RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone
9. Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a.				
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
FRANK T. Idwell Jr.	Frank Tidwell	12	17	02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR'S COPY

G & K
TANK SERVICES, INC.

Broad St. Extension • PO Box 1384 • Sumter, SC 29151
(803) 494-2694 • 1-800-800-6840 • FAX: (803) 494-8598

Certificate of Disposal

Tons 6 Drums
Former Crown SC-576
McCormick, SC

Contaminant NonHazardous Petroleum
Contaminanted Soil

This is to cerify the above soil has been processed and disposed of by G & K Tank Services, Inc., in accordance with and exceeding EPA regulations on petroleum contaminated soils.

Certified by S. Colley

Date 09/27/02

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of
	GK4823	

3. Generator's Name and Mailing Address: HEALTH CENTER
HWY 28
MCCORMICK, SC

4. Generator's Phone ( )

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
G&K TANK SERVICES		803-481-4593
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone
9. Designated Facility Name and Site Address: G&K TANK SERVICES HWY 76/378 WEST SUMTER, SC 29154	10. US EPA ID Number	C. Facility's Phone 803-481-4593

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON HAZARDOUS PETROLEUM CONTAMINANTED SOIL	06	DR		
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EARTH MANAGEMENT
P.O. BOX 24287
COLUMBIA, SC

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Frankie Tidwell Jr.	Frankie Tidwell Jr	09	27	02

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
S. Collett	S. Collett	9	27	02

GENERATOR

TRANSPORTER

FACILITY

ORIGINAL - RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name	6. US EPA ID Number	A. Transporter's Phone
7. Transporter 2 Company Name	8. US EPA ID Number	B. Transporter's Phone
9. Designated Facility Name and Site Address	10. US EPA ID Number	C. Facility's Phone

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a.				
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above	E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Frank Tidwell Jr.	Frank Tidwell	9	27	82

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year

GENERATOR'S COPY

Broad St. Extension • PO Box 1384 • Sumter, SC 29151
(803) 494-2694 • 1-800-800-6840 • FAX: (803) 494-8598

Certificate of Disposal

Tons 6 Drums
Health Center
McCormick, SC

Contaminant NonHazardous Petroleum
Contaminanted Soil

This is to cerify the above soil has been processed and disposed of by G & K Tank Services, Inc., in accordance with and exceeding EPA regulations on petroleum contaminated soils.

Certified by S. Silley

Date 09/27/02

SM

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443
Benzene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.7E-04	(cm/sec)
Hydraulic Gradient	i	0.02	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	6.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

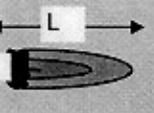
Retardation Factor*	R	1.03	(-)
or		or	
Soil Bulk Density	rho	1.6	(kg/l)
Partition Coefficient	Koc	81	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	3.5E-1	(per yr)
or		or	
Solute Half-Life	t-half	2.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	400	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

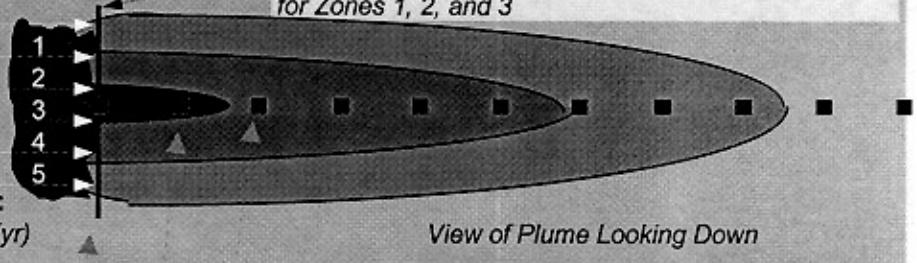
	Width* (ft)	Conc. (mg/L)*
1	0	0
2	0	0
3	125	72
4	0	0
5	0	0

Source Halflife (see Help): Infinite | Infinite (yr)

Inst. React. or 1st Order

Soluble Mass in Source NAPL, Soil: infinite (Kg)

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	72.0
50	
100	
150	
200	
250	.1
300	
350	
400	
450	
500	.001

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

Recalculate This Sheet

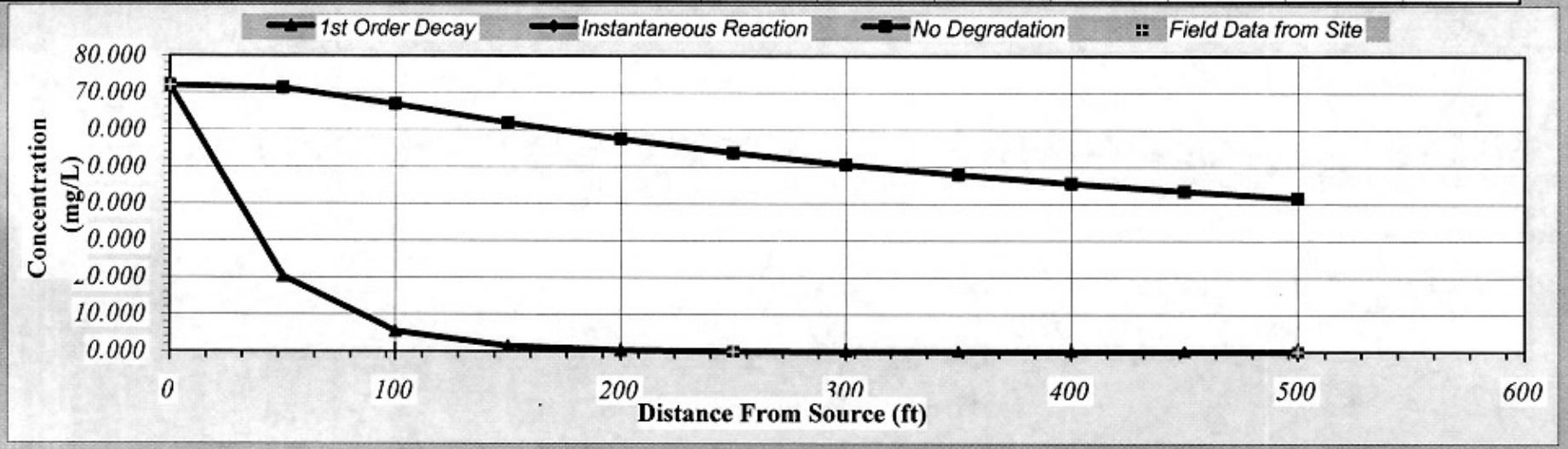
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

6/03

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	50	100	150	200	250	300	350	400	450	500
No Degradation	72.000	71.228	66.874	61.868	57.453	53.722	50.570	47.876	45.538	43.467	41.579
1st Order Decay	72.000	20.391	5.481	1.452	0.386	0.103	0.028	0.008	0.002	0.001	0.000
Inst. Reaction	72.000	71.228	66.874	61.868	57.453	53.722	50.570	47.876	45.538	43.467	41.579
Field Data from Site	72.000					0.100					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

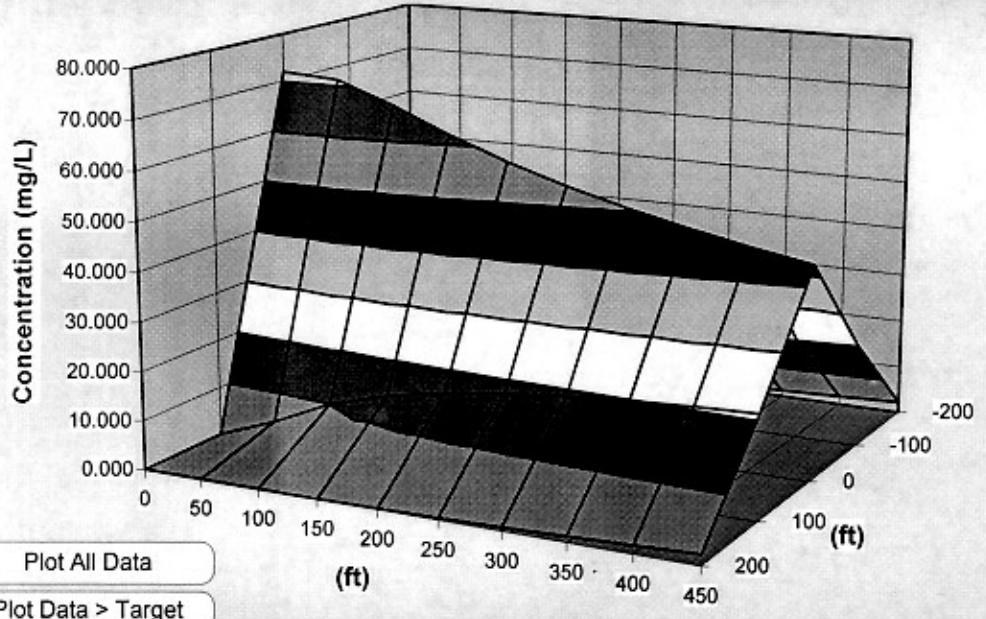
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.003	0.043	0.180	0.434	0.789	1.217	1.692	2.190	2.693
100	0.000	4.528	10.044	13.559	15.951	17.659	18.905	19.818	20.478	20.938	21.224
0	72.000	71.228	66.874	61.868	57.453	53.722	50.570	47.876	45.538	43.467	41.579
-100	0.000	4.528	10.044	13.559	15.951	17.659	18.905	19.818	20.478	20.938	21.224
-200	0.000	0.000	0.003	0.043	0.180	0.434	0.789	1.217	1.692	2.190	2.693
MASS FLUX (mg/day)	1.7E+4	1.6E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4	1.7E+4

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **Inst. Reaction**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	636.8	(Kg)
- Actual Plume Mass	636.8	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	13.5	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443
Toluene
Run Name

Data Input Instructions:

115 / or / 0.02
1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	10.0	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	1.7E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.02	*(ft/ft)*
Porosity	*n*	0.25	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	17.0	*(ft)*
Transverse Dispersivity*	*alpha y*	6.0	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	450	*(ft)*

3. ADSORPTION

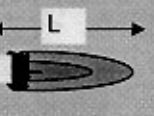
Retardation Factor*	*R*	1.05	*(-)*
or		or	
Soil Bulk Density	*rho*	1.6	*(kg/l)*
Partition Coefficient	*Koc*	133	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.4E-1	*(per yr)*
or		or	
Solute Half-Life	*t-half*	5.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*		*(mg/L)*
Delta Nitrate*	*NO3*		*(mg/L)*
Observed Ferrous Iron*	*Fe2+*		*(mg/L)*
Delta Sulfate*	*SO4*		*(mg/L)*
Observed Methane*	*CH4*		*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	400	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

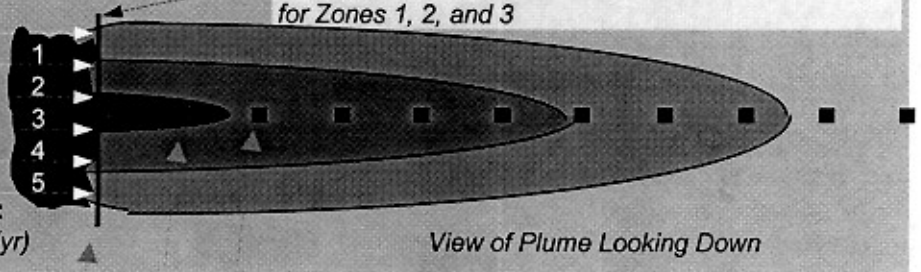
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
125	260
0	0
0	0

Source Halflife (see Help):

Infinite	Infinite	*(yr)*
Inst. React.	1st Order	
Soluble Mass	infinite	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	260.0
50	
100	
150	
200	
250	10.1
300	
350	
400	
450	
500	.001

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

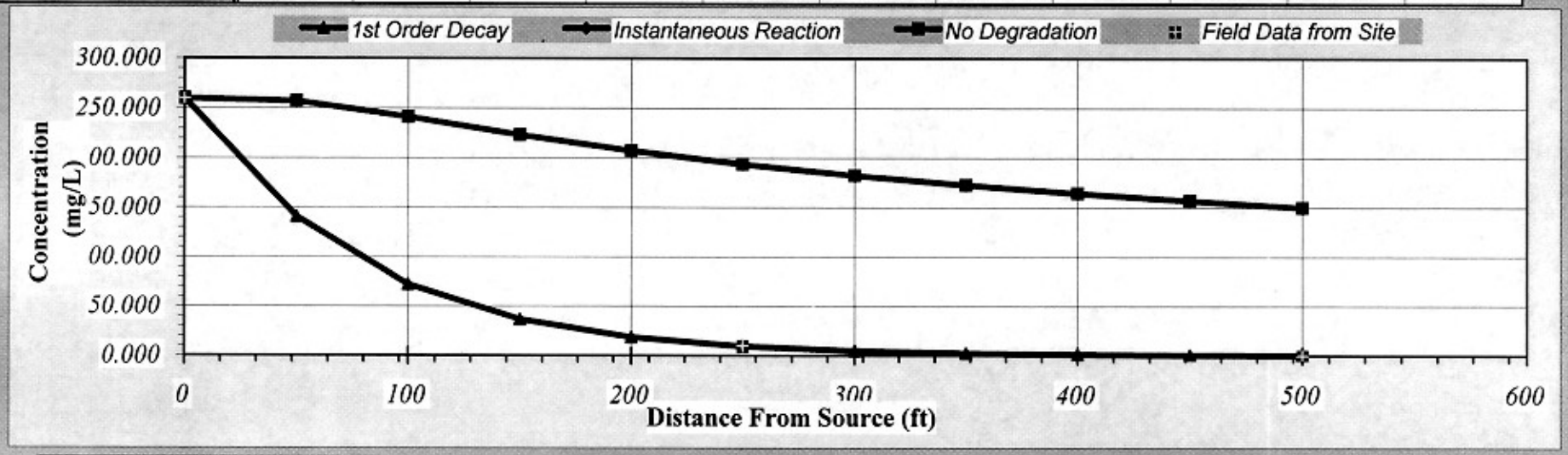
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	50	100	150	200	250	300	350	400	450	500
No Degradation	260.000	257.212	241.489	223.414	207.468	193.994	182.607	172.870	164.405	156.882	149.975
1st Order Decay	260.000	140.762	72.324	36.618	18.609	9.523	4.906	2.542	1.324	0.693	0.364
Inst. Reaction	260.000	257.212	241.489	223.414	207.468	193.994	182.607	172.870	164.405	156.882	149.975
Field Data from Site	260.000					10.100					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

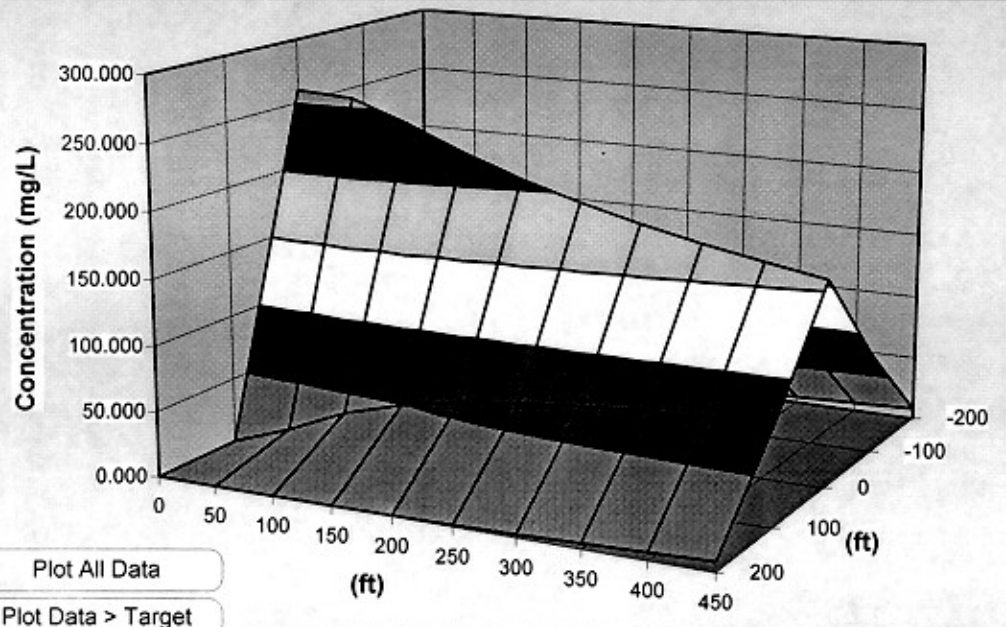
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.009	0.155	0.651	1.567	2.848	4.394	6.108	7.906	9.715
100	0.000	16.352	36.272	48.962	57.600	63.769	68.267	71.558	73.933	75.570	76.554
0	260.000	257.212	241.489	223.414	207.468	193.994	182.607	172.870	164.405	156.882	149.975
-100	0.000	16.352	36.272	48.962	57.600	63.769	68.267	71.558	73.933	75.570	76.554
-200	0.000	0.000	0.009	0.155	0.651	1.567	2.848	4.394	6.108	7.906	9.715
MASS FLUX (mg/day)	6.3E+4	5.6E+4	6.1E+4	6.2E+4	6.3E+4	6.3E+4	6.3E+4	6.3E+4	6.3E+4	6.3E+4	6.3E+4

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **Inst. Reaction**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	2299.4	(Kg)
- Actual Plume Mass	2299.4	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	14.1	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443
Ethylbenzene
Run Name

Data Input Instructions:

115 or 0.02
1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.7E-04	(cm/sec)
Hydraulic Gradient	i	0.02	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	6.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

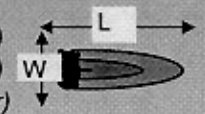
Retardation Factor*	R	1.06	(-)
or		or	
Soil Bulk Density	rho	1.6	(kg/l)
Partition Coefficient	Koc	176	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.7E-1	(per yr)
or		or	
Solute Half-Life	t-half	4.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	400	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

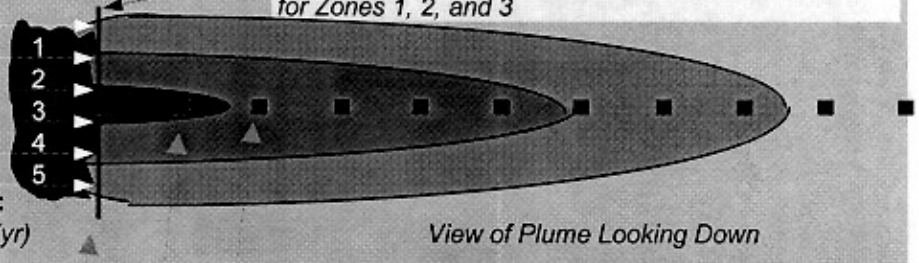
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
125	40
0	0
0	0

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	40.0
50	
100	
150	
200	
250	.799
300	
350	
400	
450	
500	.001

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

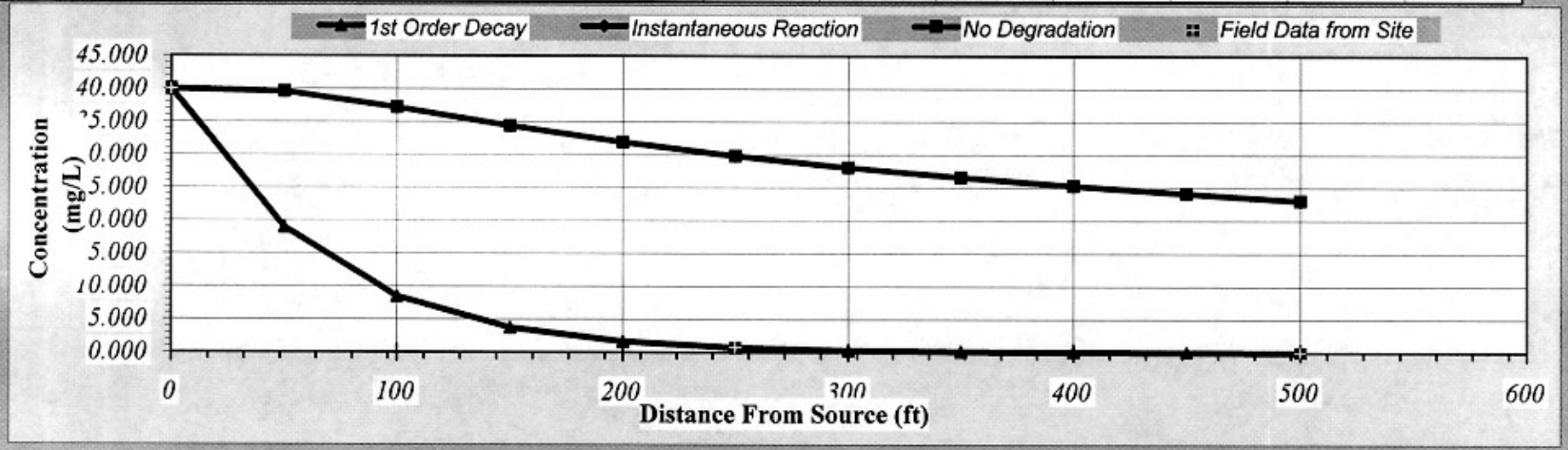
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	50	100	150	200	250	300	350	400	450	500
No Degradation	40.000	39.571	37.152	34.371	31.918	29.845	28.092	26.593	25.288	24.123	23.048
1st Order Decay	40.000	18.939	8.510	3.768	1.675	0.749	0.338	0.153	0.070	0.032	0.015
Inst. Reaction	40.000	39.571	37.152	34.371	31.918	29.845	28.092	26.593	25.288	24.123	23.048
Field Data from Site	40.000					0.799					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

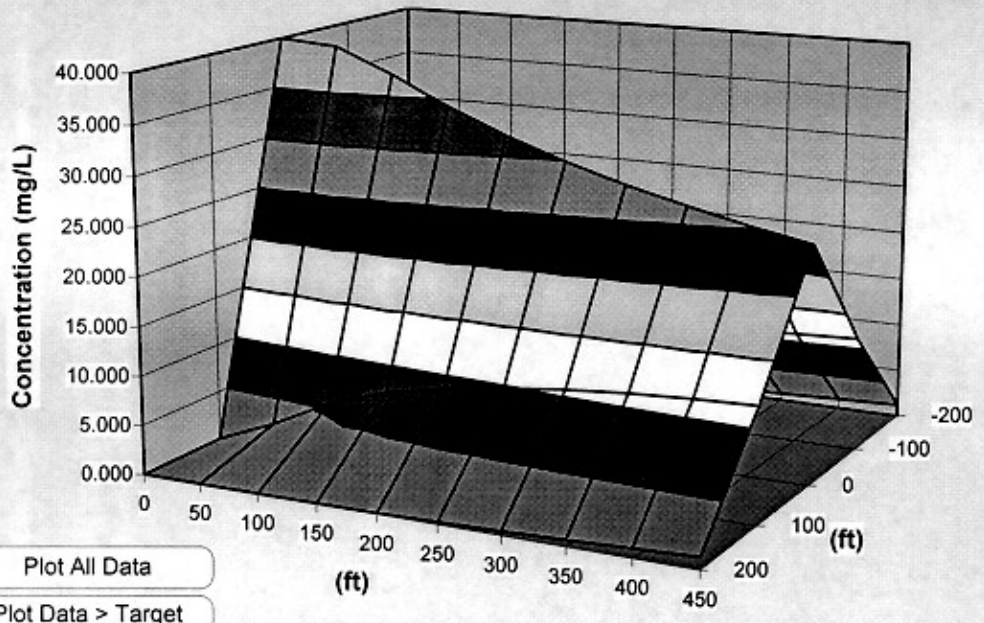
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.001	0.024	0.100	0.241	0.438	0.676	0.939	1.216	1.493
100	0.000	2.516	5.580	7.533	8.862	9.811	10.502	11.008	11.372	11.620	11.765
0	40.000	39.571	37.152	34.371	31.918	29.845	28.092	26.593	25.288	24.123	23.048
-100	0.000	2.516	5.580	7.533	8.862	9.811	10.502	11.008	11.372	11.620	11.765
-200	0.000	0.000	0.001	0.024	0.100	0.241	0.438	0.676	0.939	1.216	1.493
MASS FLUX (mg/day)	9.7E+3	8.6E+3	9.4E+3	9.6E+3	9.7E+3	9.7E+3	9.7E+3	9.7E+3	9.7E+3	9.7E+3	9.6E+3

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: Inst. Reaction



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	353.8	(Kg)
- Actual Plume Mass	353.8	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	13.5	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443
Xylenes
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.7E-04	(cm/sec)
Hydraulic Gradient	i	0.02	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	6.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

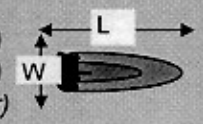
Retardation Factor*	R	1.23	(-)
or		or	
Soil Bulk Density	rho	1.6	(kg/l)
Partition Coefficient	Koc	639	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.4E-1	(per yr)
or		or	
Solute Half-Life	t-half	5.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	400	(ft)
Simulation Time*	100	(yr)



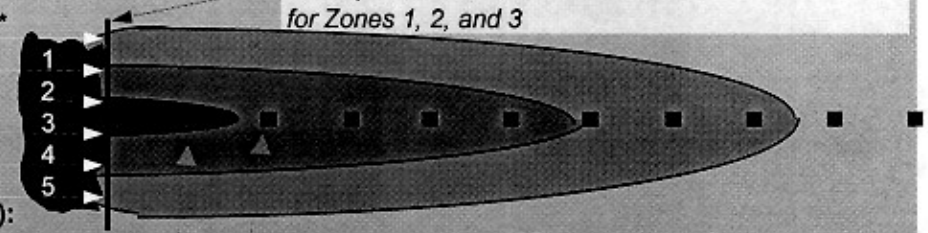
6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
125	180
0	0
0	0

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	180.0					4.54					.001
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

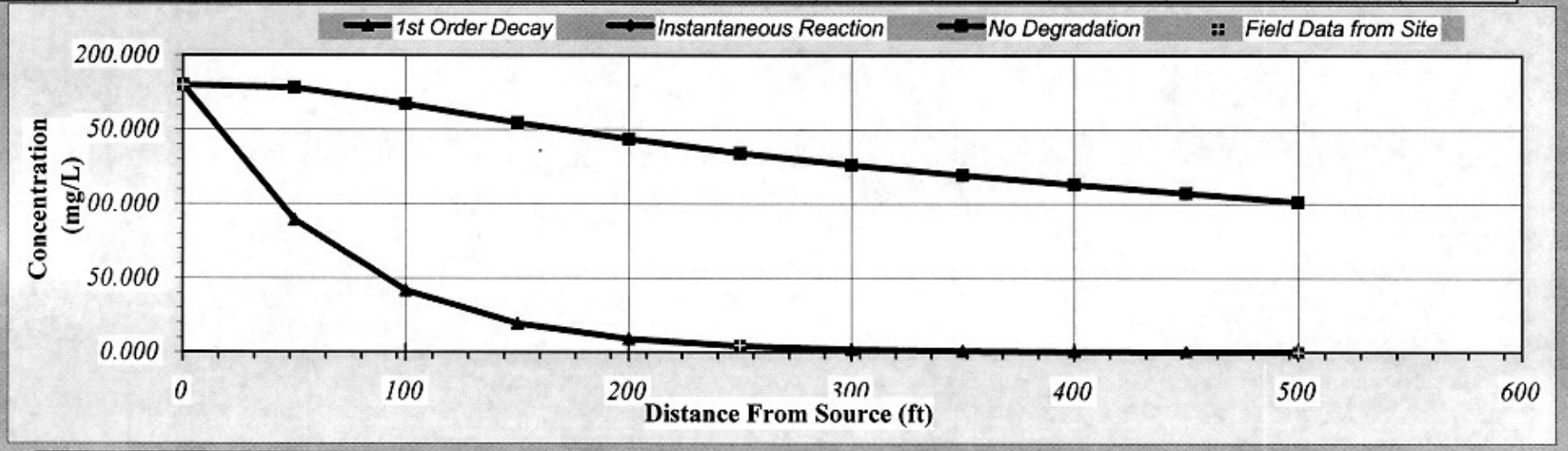
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	180.000	178.069	167.183	154.666	143.617	134.260	126.305	119.395	113.176	107.267	101.243
1st Order Decay	180.000	89.172	41.925	19.423	9.033	4.230	1.994	0.946	0.451	0.216	0.104
Inst. Reaction	180.000	178.069	167.183	154.666	143.617	134.260	126.305	119.395	113.176	107.267	101.243
Field Data from Site	180.000					4.540					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

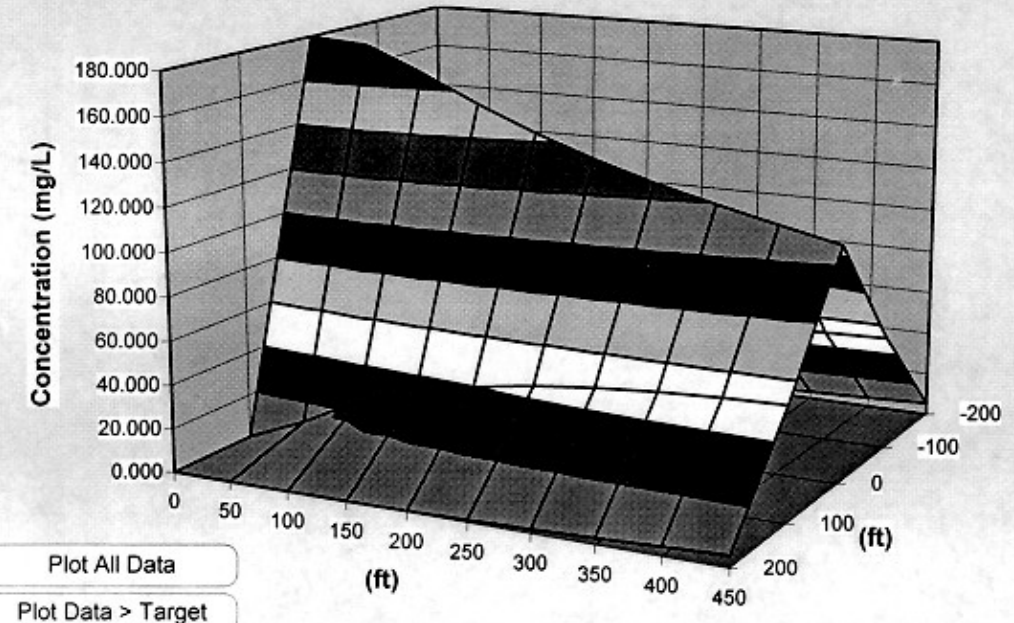
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.006	0.107	0.450	1.085	1.970	3.035	4.205	5.406	6.558
100	0.000	11.321	25.111	33.896	39.873	44.134	47.219	49.423	50.895	51.670	51.679
0	180.000	178.069	167.183	154.666	143.617	134.260	126.305	119.395	113.176	107.267	101.243
-100	0.000	11.321	25.111	33.896	39.873	44.134	47.219	49.423	50.895	51.670	51.679
-200	0.000	0.000	0.006	0.107	0.450	1.085	1.970	3.035	4.205	5.406	6.558
MASS FLUX (mg/day)	4.4E+4	3.9E+4	4.2E+4	4.3E+4	4.3E+4	4.4E+4	4.4E+4	4.3E+4	4.3E+4	4.3E+4	4.2E+4

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: Inst. Reaction



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	1591.9	(Kg)
- Actual Plume Mass	1591.9	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	14.1	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443
Naphthalene
Run Name

Data Input Instructions:

115
↑ or
0.02

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* ▸ Data used directly in model.
20 ▸ Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.0	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.7E-04	(cm/sec)
Hydraulic Gradient	i	0.02	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	6.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

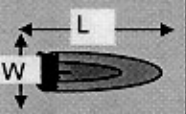
Retardation Factor*	R	1.23	(-)
or		↑ or	
Soil Bulk Density	rho	1.6	(kg/l)
Partition Coefficient	Koc	639	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.5E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	4.70	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	400	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

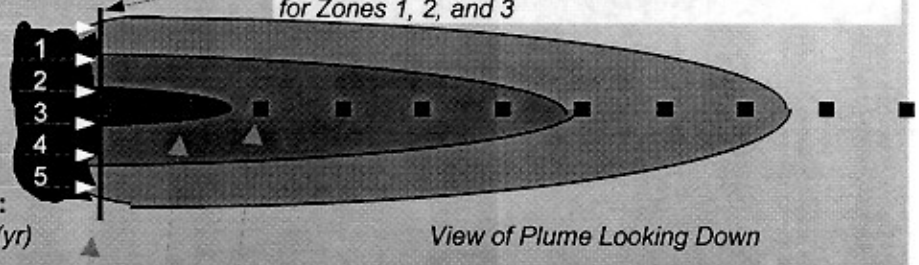
Source Zones:

Width* (ft)	Conc. (mg/L)*
0	0
0	0
125	20
0	0
0	0

Source Halflife (see Help):

Infinite	Infinite	(yr)
Inst. React.	↑↓ 1st Order	
Soluble Mass	infinite	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	20.0
50	
100	
150	
200	
250	.39
300	
350	
400	
450	
500	.001

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

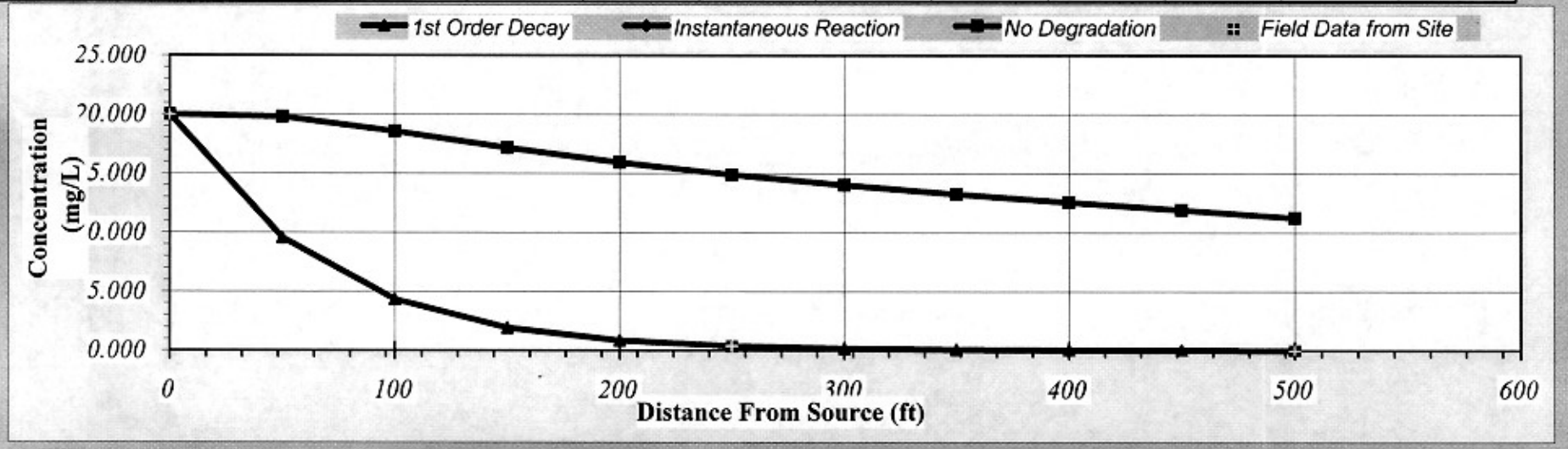
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	50	100	150	200	250	300	350	400	450	500
No Degradation	20.000	19.785	18.576	17.185	15.957	14.918	14.034	13.266	12.575	11.919	11.249
1st Order Decay	20.000	9.550	4.328	1.933	0.866	0.391	0.178	0.081	0.037	0.017	0.008
Inst. Reaction	20.000	19.785	18.576	17.185	15.957	14.918	14.034	13.266	12.575	11.919	11.249
Field Data from Site	20.000					0.390					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

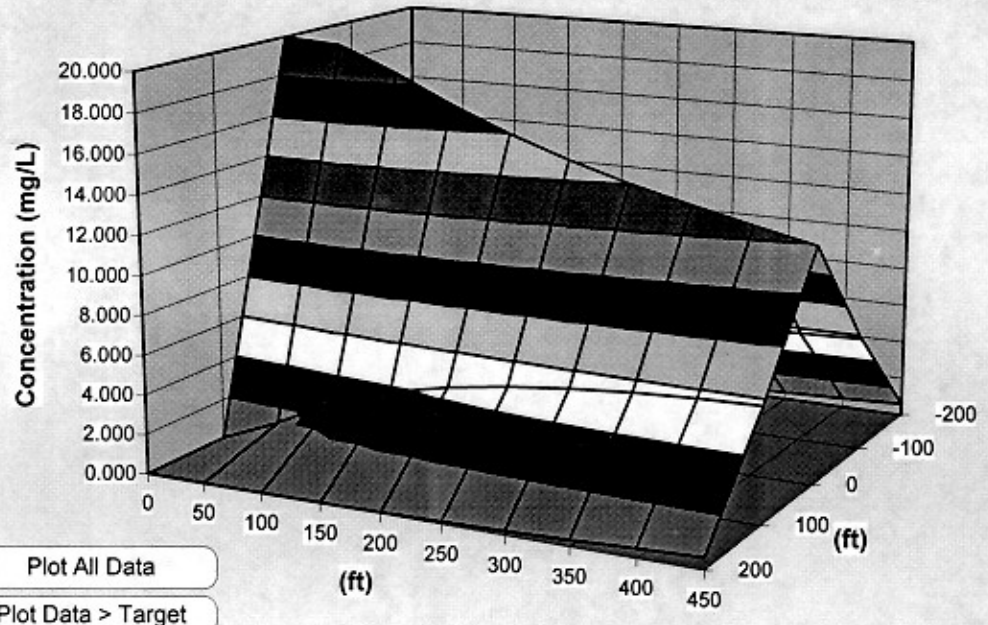
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.001	0.012	0.050	0.121	0.219	0.337	0.467	0.601	0.729
100	0.000	1.258	2.790	3.766	4.430	4.904	5.247	5.491	5.655	5.741	5.742
0	20.000	19.785	18.576	17.185	15.957	14.918	14.034	13.266	12.575	11.919	11.249
-100	0.000	1.258	2.790	3.766	4.430	4.904	5.247	5.491	5.655	5.741	5.742
-200	0.000	0.000	0.001	0.012	0.050	0.121	0.219	0.337	0.467	0.601	0.729
MASS FLUX (mg/day)	4.8E+3	4.3E+3	4.7E+3	4.8E+3	4.8E+3	4.8E+3	4.8E+3	4.8E+3	4.8E+3	4.8E+3	4.7E+3

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **Inst. Reaction**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	176.9	(Kg)
- Actual Plume Mass	176.9	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	13.5	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

06443 / MtBE — Run Name

Data Input Instructions:

115 / or / 0.02

1. Enter value directly....or
2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	10.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	1.7E-04	(cm/sec)
Hydraulic Gradient	i	0.02	(ft/ft)
Porosity	n	0.25	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	17.0	(ft)
Transverse Dispersivity*	alpha y	6.0	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	450	(ft)

3. ADSORPTION

Retardation Factor*	R	1.00	(-)
or		or	
Soil Bulk Density	rho	1.6	(kg/l)
Partition Coefficient	Koc	1	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

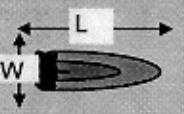
1st Order Decay Coeff*	lambda	5.3E-1	(per yr)
or		or	
Solute Half-Life	t-half	1.30	(year)

or Instantaneous Reaction Model

Delta Oxygen*	DO		(mg/L)
Delta Nitrate*	NO3		(mg/L)
Observed Ferrous Iron*	Fe2+		(mg/L)
Delta Sulfate*	SO4		(mg/L)
Observed Methane*	CH4		(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	400	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

	Width* (ft)	Conc. (mg/L)*
1	0	0
2	0	0
3	125	1512
4	0	0
5	0	0

Source Halflife (see Help):

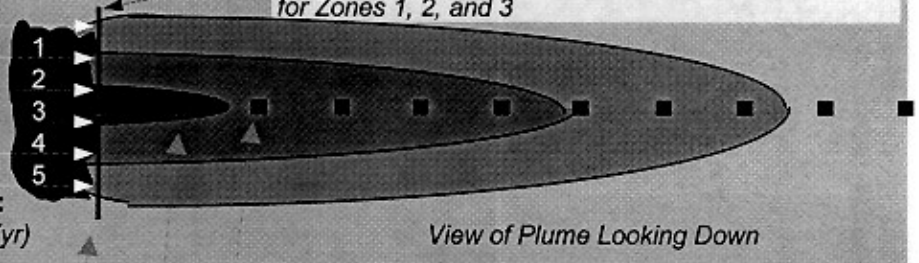
Infinite | Infinite (yr)

Inst. React. / 1st Order

Soluble Mass: infinite (Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	1512.0
50	
100	
150	
200	
250	.209
300	
350	
400	
450	
500	.001

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

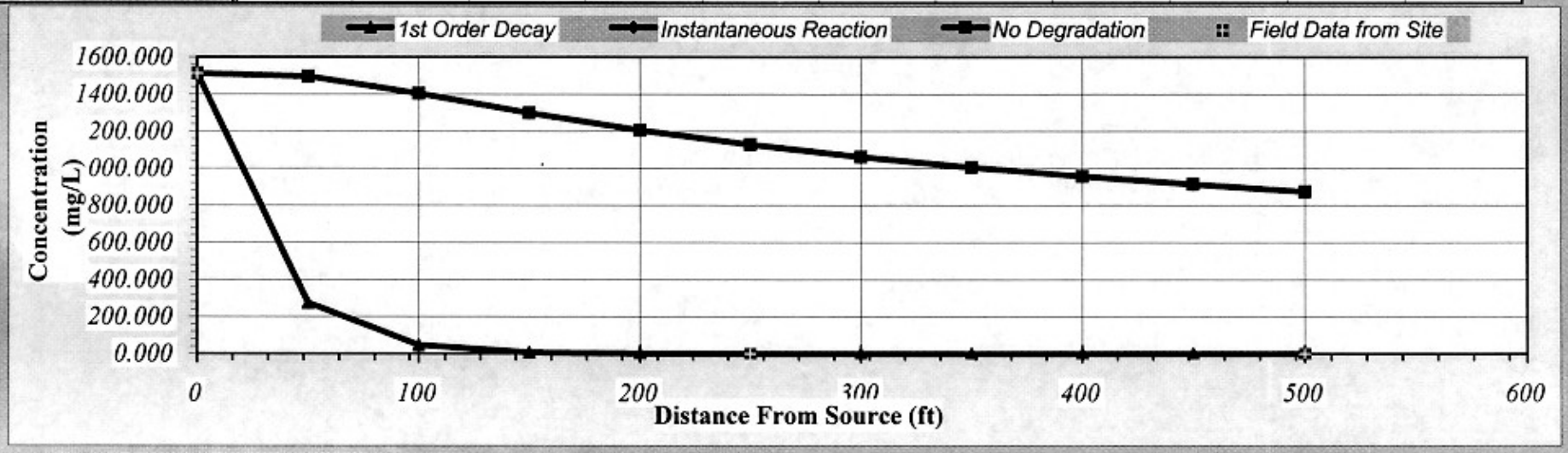
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

TYPE OF MODEL	Distance from Source (ft) 0	50	100	150	200	250	300	350	400	450	500
No Degradation	1512.000	1495.784	1404.350	1299.238	1206.515	1128.177	1062.000	1005.494	956.545	913.379	874.379
1st Order Decay	1512.000	275.559	47.661	8.123	1.390	0.239	0.042	0.007	0.001	0.000	0.000
Inst. Reaction	1512.000	1495.784	1404.350	1299.238	1206.515	1128.177	1062.000	1005.494	956.545	913.379	874.379
Field Data from Site	1512.000					0.209					0.001



Calculate Animation
Next Timestep
Prev Timestep

Time:
100 Years

Return to Input

Recalculate This Sheet

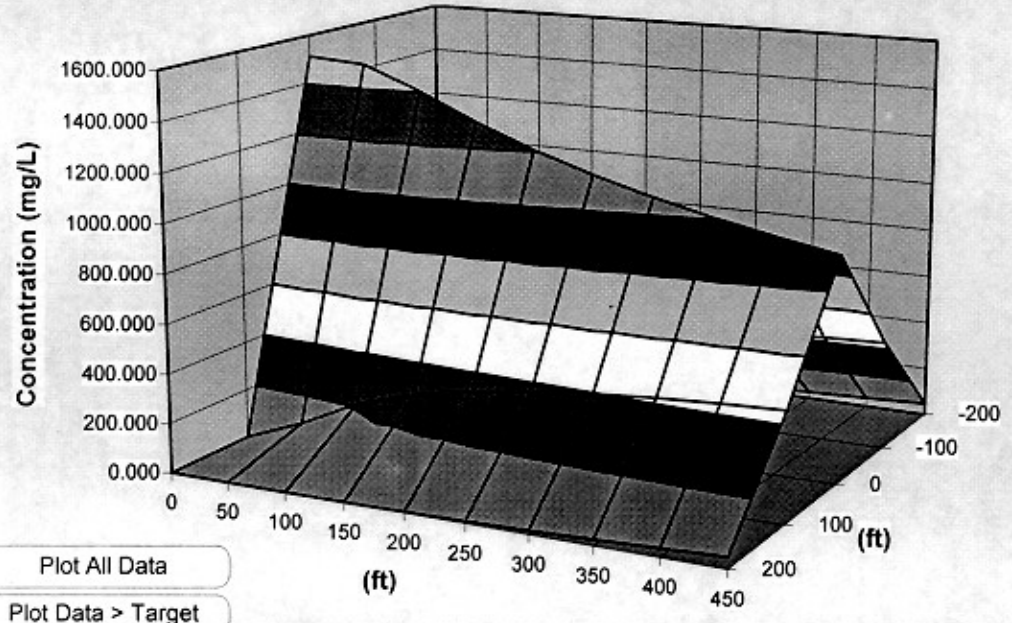
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
200	0.000	0.000	0.054	0.901	3.784	9.116	16.565	25.558	35.536	46.028	56.641
100	0.000	95.095	210.934	284.732	334.969	370.850	397.028	416.219	430.159	439.975	446.323
0	1512.000	1495.784	1404.350	1299.238	1206.515	1128.177	1062.000	1005.494	956.545	913.379	874.379
-100	0.000	95.095	210.934	284.732	334.969	370.850	397.028	416.219	430.159	439.975	446.323
-200	0.000	0.000	0.054	0.901	3.784	9.116	16.565	25.558	35.536	46.028	56.641
MASS FLUX (mg/day)	3.7E+5	3.3E+5	3.5E+5	3.6E+5	3.7E+5	3.7E+5	3.7E+5	3.7E+5	3.7E+5	3.7E+5	3.6E+5

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: Inst. Reaction



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	13371.8	(Kg)
- Actual Plume Mass	13371.8	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	(Kg)

Contam. Mass in Source (t=0 Years)	infinite	(Kg)
Contam. Mass in Source Now (t=100Years)	Infinite	(Kg)
Current Volume of Groundwater in Plume	14.1	(ac-ft)
Flowrate of Water Through Source Zone	0.072	(ac-ft/yr)

Mass HELP

Recalculate

SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Benzene

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	0.005	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000111	/s

Calculations:

EXP(-9.1399)	=	0.0001
ERFC(-12.0914)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	**********	ug/L
Csstl :	989.1832798	mg/L

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Unauthorized use is strictly prohibited.

SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Toluene

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	1.000	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000043	/s

Calculations:

EXP(-4.6316)	=	0.0097
ERFC(-8.0581)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	**********	ug/L
Csstl :	2179.6615767	mg/L

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SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Ethylbenzene

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	0.700	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000059	/s

Calculations:

EXP(-5.8621)	=	0.0028
ERFC(-9.1589)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	**********	ug/L
Csstl :	5222.2486149	mg/L

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SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Xylenes

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	10.000	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000043	/s

Calculations:

EXP(-4.6316)	=	0.0097
ERFC(-8.0581)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	**********	ug/L
Csstl :	21796.6157667	mg/L

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SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Naphthalene

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	0.025	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000048	/s

Calculations:

EXP(-5.0324)	=	0.0065
ERFC(-8.4166)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	81351.5466	ug/L
Csstl :	81.3515466	mg/L

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SCDHEC :: SSTL Model version 1.0c

Site ID: 06443 06/24/2003 CoC : Mtbe

Source: MW-20R Receptor: Creek

Input Parameters:

CoC RBSL:	0.400	mg/L
Width across flow dir.:	30.4800	m
Estimated Source Depth:	3.000	m
Distance along x-axis:	152.400	m
Distance along y-axis:	0.000	m
Distance along z-axis:	0.000	m
Seepage Velocity:	0.0000000967	m/s
Time of transport:	400.0	years
First Order Decay Rate	0.0000000168	/s

Calculations:

EXP(-12.0226)	=	0.0000
ERFC(-14.6704)	=	2.0000
ERF(0.2739)	=	0.3018
ERF(0.1392)	=	0.1561

Decay is considered

Ax:	15.2400
Ay:	5.0800
Az:	0.7620

Results:

Csstl :	**********	ug/L
Csstl :	**********	mg/L

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Program Developed by Sriram Madabhushi.
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RECEIVED

JUN 2 3 2003

UNDERGROUND STORAGE
TANK PROGRAM

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443
EMS Job No. 2125-036

UST
41
DOCKETING

GROUND WATER SAMPLING AND ANALYSIS REPORT

Former Crown SC-576
201 Highway 28 & 32
McCormick, South Carolina
UST Permit No. 06443

Prepared For:

Crown Central Petroleum Corporation
8227 Cloverleaf Drive, Suite 304
Millersville, Maryland 21108

Prepared By:

Earth Management Systems, Inc.
3025 McNaughton Drive
Columbia, South Carolina 29203

Date:

June 19, 2003

Norman E. Partin, Jr., C.H.M.M.
Project Environmental Scientist

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

INTRODUCTION

Earth Management Systems, Inc. (EMS) has completed the monitoring well replacement and ground water sampling and analysis at the Former Crown SC-576 facility, 201 US Highway 28 and 32, McCormick, South Carolina. A site location map is included as Figure 1. This work was performed in accordance with SCDHEC Cost Proposal No. 17641. The purpose of the sampling was to evaluate the current ground water quality conditions in response to a release of petroleum hydrocarbons from an underground storage tank (UST) system at the site and to replace one lost monitoring well.

This report includes a brief summary of the field methods utilized along with results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

MONITORING WELL INSTALLATION

One shallow (Type II) monitoring well (MW-18R) was installed by EMS in conjunction with this evaluation. This well was installed to replace a previously installed well that has been lost due to overgrowth of brush on the property. The well was constructed in accordance with South Carolina Well Standards and Regulations by a state certified water well driller. Auger cuttings were examined during well installation for verification of soil descriptions provided on previous geologist logs. A geologist log is included in the Appendix. Soil cuttings generated from the installation of monitoring well were screened with an OVA meter, determined to be clean, and subsequently spread on site.

The boring for the replacement monitoring well was drilled to a depth of 33 feet below ground surface using 4.25-inch hollow-stem augers. The Type II well was completed with two-inch PVC casing and 15 feet of 0.010-inch slot screen installed to bracket the water table. A clean, graded sand pack was placed around the annulus of the monitoring wells to within two feet above the screens, and the wells were developed with a submersible pump to remove formational fines from the wells and gravel pack. A bentonite seal was placed above the sand pack and the remaining annulus was grouted to land surface with cement grout. A locking cap and vault cover with concrete pad was installed at land surface at each well. The screen settings of all the monitoring wells are included on Table 1. A site map with all monitoring well locations is included as Figure 2.

GROUND WATER OCCURRENCE AND FLOW DIRECTION

Water level measurements were recorded at the site monitoring wells on May 28, 2003. Ground water elevations were determined by subtracting the depth to water, which was measured using an oil/water interface probe, from previously surveyed elevations at each well. Six of the wells (MW-1, MW-2, MW-4R, MW-5, MW-13R, and MW-14B) contained free-product at thicknesses ranging from 0.12 feet to 5.89 feet. Ground water elevation and free product thickness data are presented in Table 1.

A potentiometric surface map of the water table aquifer is included as Figure 3. Inspection of Figure 2 indicates the ground water flow direction in the water table aquifer to be toward the east, with an average hydraulic gradient of approximately 0.02 ft./ft. Ground water elevations are approximately 8 to 14 feet higher than the elevations recorded during the previously recorded event.

GROUND WATER SAMPLING AND LABORATORY DATA

Ground water samples were collected from site monitoring wells on May 28 and 29, 2003. Six of the wells contained greater than 0.1 feet of free product and were not sampled. Samples that could be collected were obtained from the monitoring wells with dedicated sampling equipment and surgical gloves to prevent cross-contamination between wells. A minimum of three well water volumes was purged from each of the wells, or the wells were purged dry and allowed to recharge prior to sampling. Purge water generated during sampling of impacted wells was drummed and disposed of by G&K Tank Services, of Sumter, South Carolina. A waste disposal manifest is included in the Appendix.

PETROLEUM-RELATED COMPOUNDS

Ground water samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), and naphthalene per Environmental Protection Agency (EPA) Method 8260, 1,2-dibromomethane (EDB) by EPA Method 8011, and total lead per EPA Method SM3113B. All samples were placed in laboratory prepared containers with a completed chain of custody log, packed in a cooler filled with ice, and shipped to a South Carolina certified laboratory for chemical analysis. A summary of ground water quality data collected for this assessment is provided as Table 2. A copy of the laboratory report and the ground water sampling Field Data Information Sheets

are included in the Appendix.

Free product was detected in four on-site wells (MW-1, MW-2, MW-4R, and MW-5) and two off-site monitoring wells (MW-13R and MW-14B) located downgradient of the former UST area. Inspection of the laboratory data indicate the presence of dissolved hydrocarbon compounds at concentrations above Risk Based Screening Levels (RBSLs) in monitoring wells MW-6, MW-12R, MW-20R, MW-25, and MW-26. A Total BTEX concentration map illustrating the current distribution of hydrocarbon compounds based on the above data is included as Figure 4. The dissolved hydrocarbon plume is estimated to be approximately 550 feet long and 260 feet wide at the source area tapering to approximately 80 feet wide at the downgradient edge. MTBE and Naphthalene were also detected in several onsite and downgradient wells. Inspection of Figure 5 indicates the distribution of these compounds is relatively the same as the BTEX plume.

Total lead was detected in monitoring wells MW-6, MW-7B, MW-8R, MW-9B, MW-10, MW-20R, and MW-22. Additionally, EDB concentrations were detected in wells MW-6, MW-9B, MW-12R, MW-20RMW-25, and MW-26.

CONCLUSIONS AND RECOMMENDATIONS

The results of this comprehensive sampling and analysis indicate that the horizontal extents of the dissolved and free phase hydrocarbon plumes have been relatively well defined by the monitoring well network. Six of the wells (MW-1, MW-2, MW-4R, MW-5, MW-13R, and MW-14B) contained free-product at thicknesses ranging from 0.12 feet to 5.89 feet.

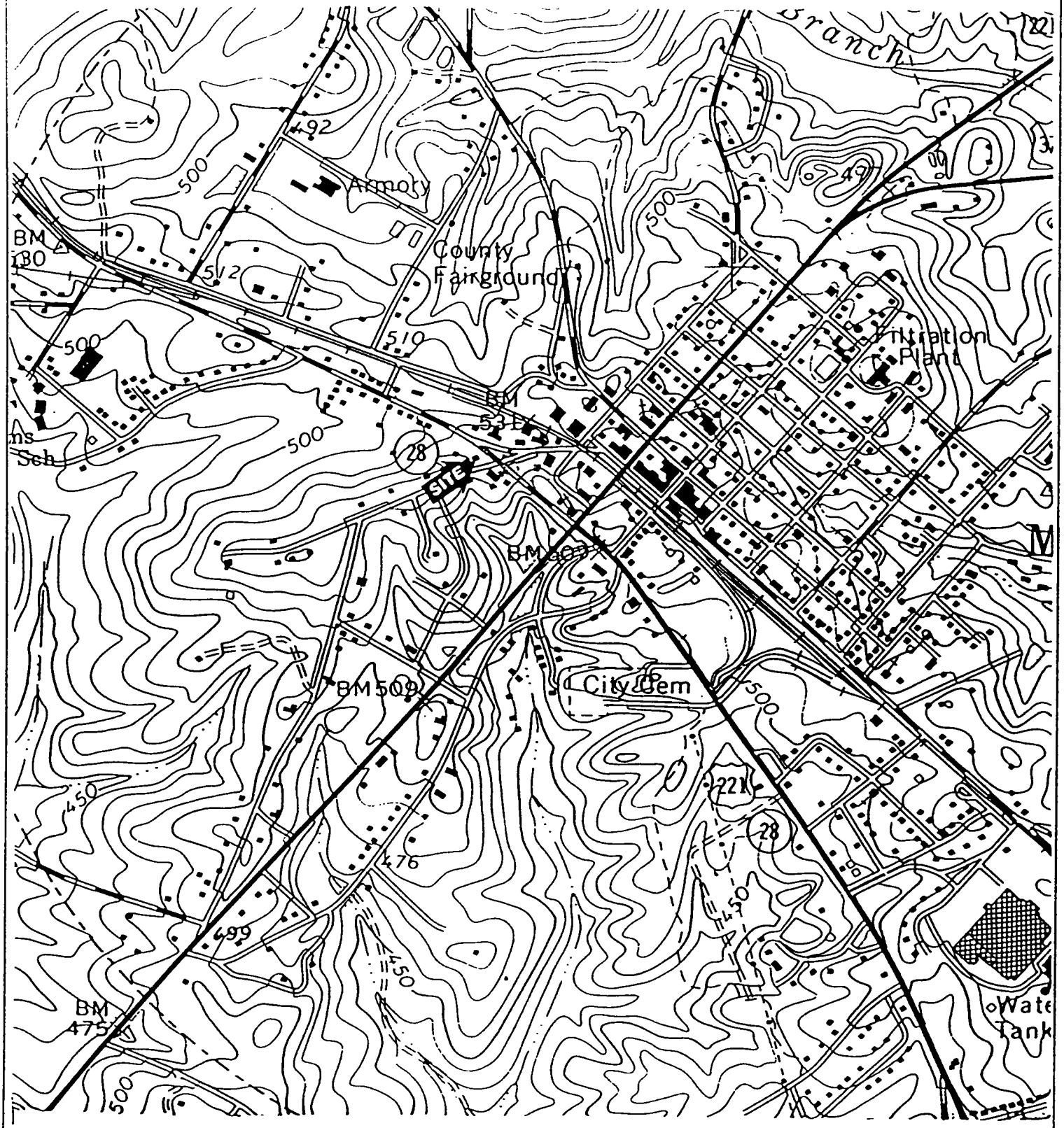
Earth Management Systems recommends active corrective action for this site in the form of free product removal. Once free product is removed, the site may be a candidate for passive remediation by monitored natural attenuation.

LIMITATIONS

This report has been prepared for the exclusive use of Crown Central Petroleum for specific application to the Former Crown SC-576 facility – 201 Highway 28 and 32 in McCormick, South Carolina. Our findings have been developed in accordance with generally accepted standards of geology and hydrogeology practice in South Carolina. No other warranty is expressed or implied. We accept no responsibility for damages or claims resulting from past or future contamination, or subsequent remediation.

APPENDIX

FIGURES



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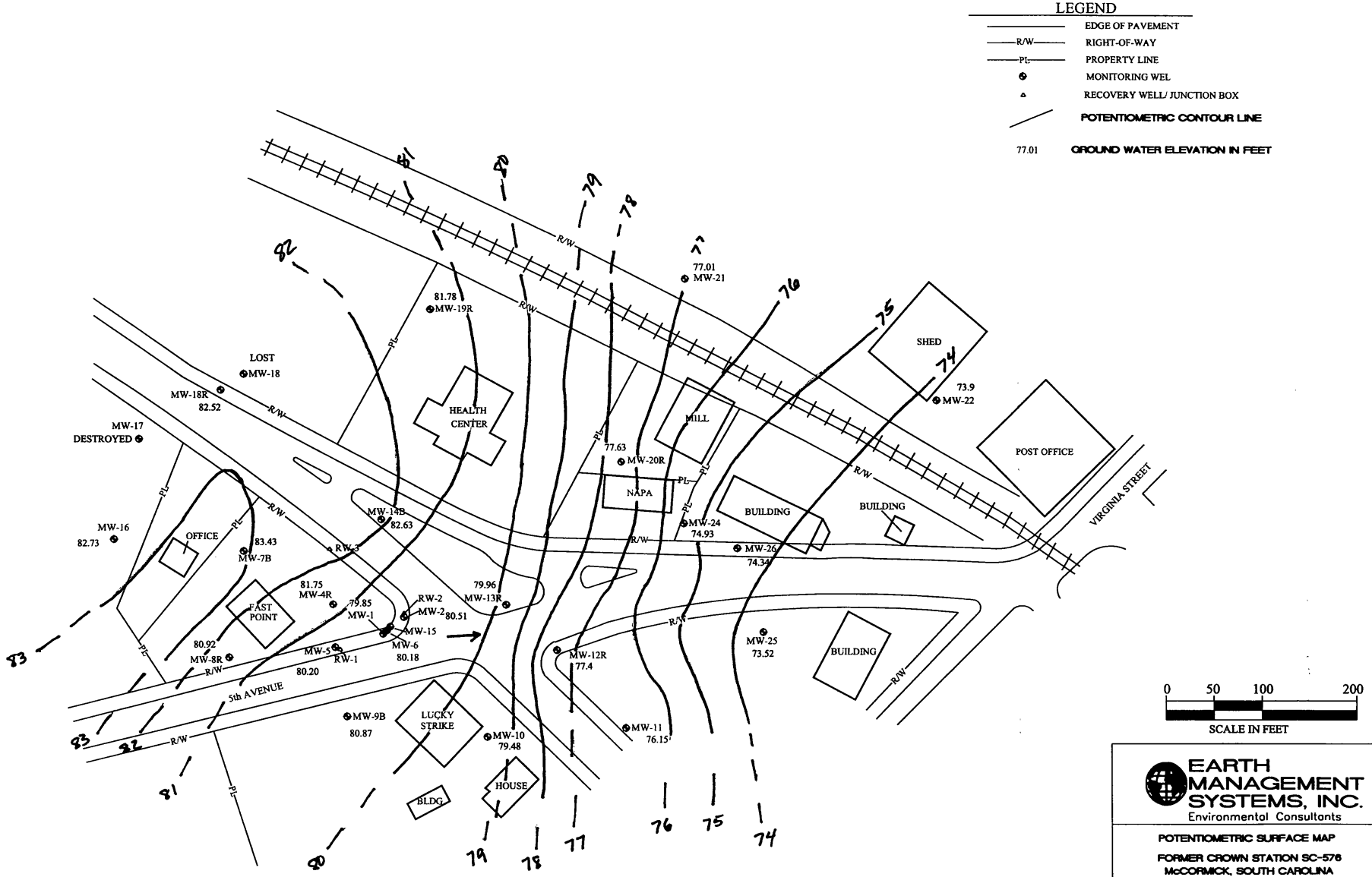
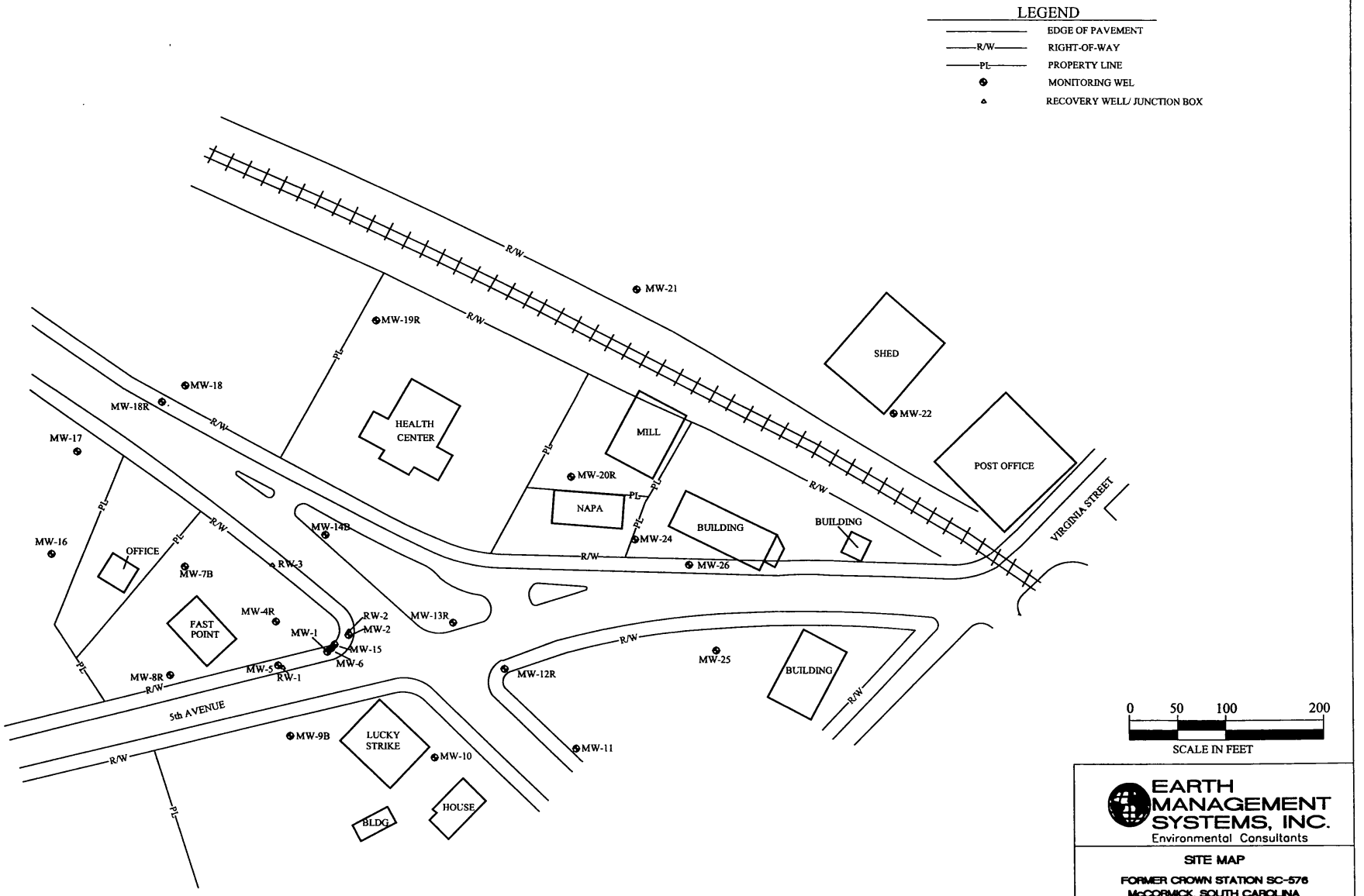
Environmental Consultants

FIGURE 1
SITE LOCATION MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA
JOB NO.: 2125-036
SCALE: 1"=1,000'



D:\PROJECTS\2001JOBS\2125-036\CROWN.DWG



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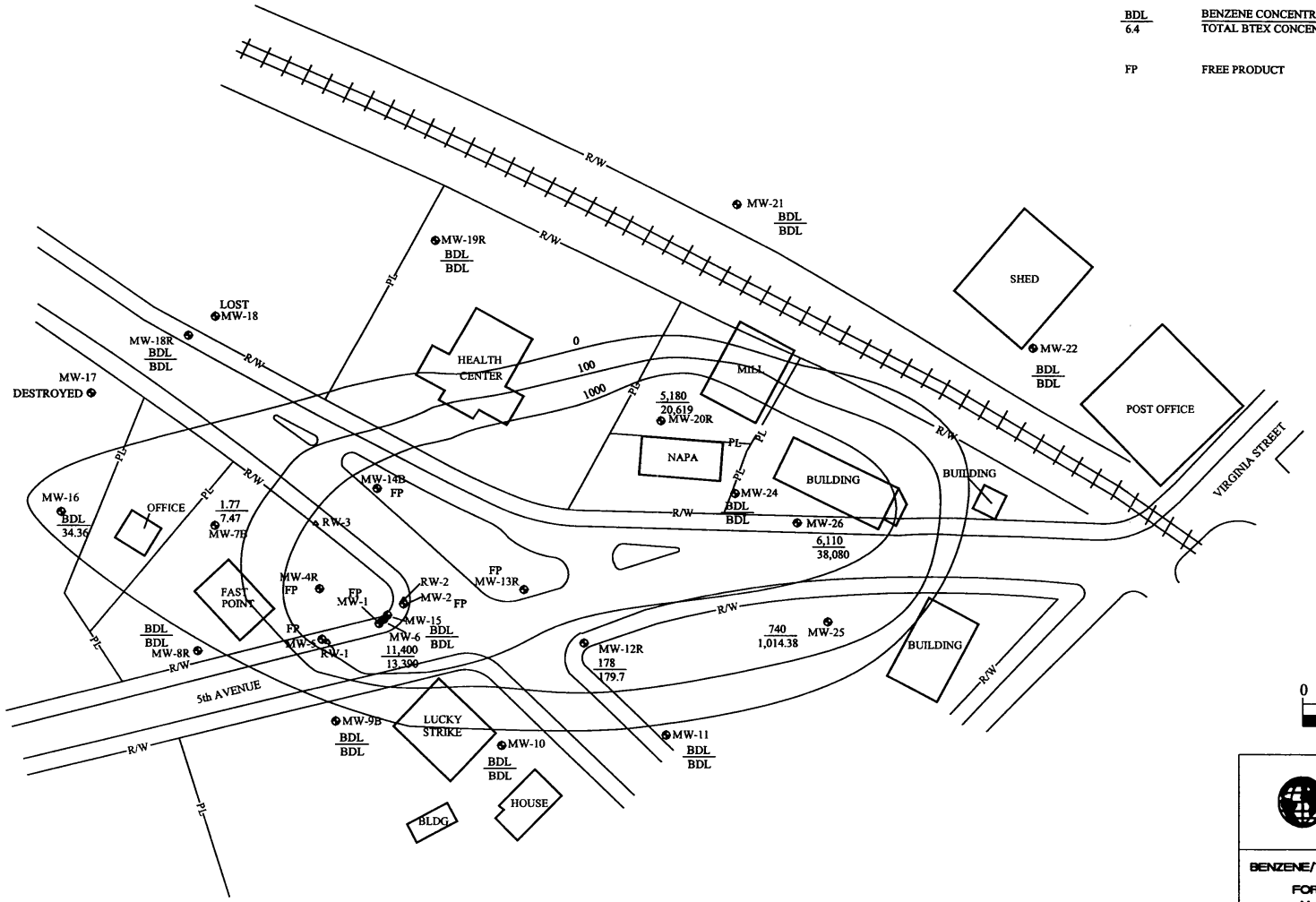
SITE MAP

FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
DDD	10/27/02	GP	10/28/02
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 2	

:JECTS\2001\JOBS\2125-036\CROWN.DWG



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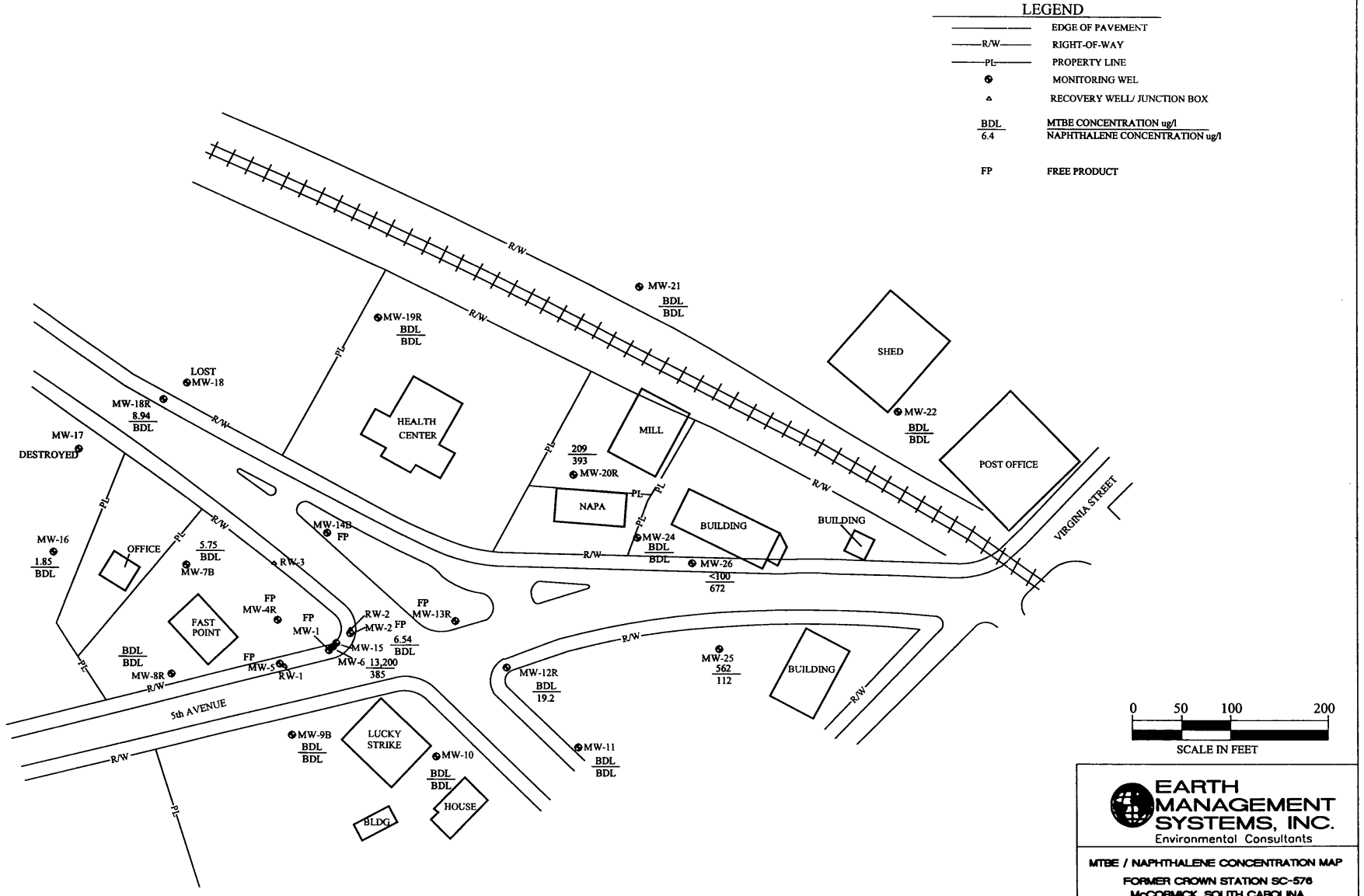
Environmental Consultants

BENZENE/TOTAL BTEX CONCENTRATION MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
GP	6/19/03	MH	6/19/03
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 4	

D:\PROJECTS\2001JOBS\2125-036\CROWN.DWG



EARTH MANAGEMENT SYSTEMS, INC.
Environmental Consultants

MTBE / NAPHTHALENE CONCENTRATION MAP
FORMER CROWN STATION SC-576
McCORMICK, SOUTH CAROLINA

DRAWN BY:	DATE:	CHECKED BY:	DATE:
GP	6/19/03	MH	6/19/03
SCALE: 1 INCH = 100 FEET		DRAWING SIZE: B	
JOB NO.: 2125-036		FIGURE 5	

TABLES

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-1	10/11/96	NA	100.03	22.20	23.23	1.03	77.60
	9/19/01			29.40	30.01	0.61	70.50
	9/18/02			ND	Dry	ND	Dry
	5/28/03			19.34	23.15	3.81	79.85
MW-2	10/11/96	NA	99.31	20.75	23.28	2.53	78.00
	9/19/01			28.31	29.74	1.43	70.69
	9/18/02			ND	Dry	ND	Dry
	5/28/03			17.50	23.39	5.89	80.51
MW-4	10/11/96	NA	101.51	23.45	24.29	0.84	77.88
	9/19/01			ND	Dry	ND	ND
MW-4R	9/18/02	20.5-30.5	101.56	ND	Dry	ND	Dry
	5/28/03			19.51	20.84	1.33	81.75
MW-5	10/11/96	NA	102.16	21.89	24.08	2.19	79.79
	9/19/01			30.74	32.76	2.02	70.98
	9/18/02			ND	Dry	ND	Dry
	5/28/03			21.77	22.60	0.83	80.20
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NS	NS	NS	NS
	5/28/03			ND	18.00	ND	83.43
MW-8	10/11/96	10-20	103.85	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	18.12	ND	80.87
MW-10	10/11/96	8-18	93.53	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	14.05	ND	79.48
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	9.65	ND	76.15
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			ND	Dry	ND	Dry
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	0.41	77.87
	9/19/01			ND	Dry	ND	Dry
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	0.30	79.96
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	0.63	65.35
	5/28/03			18.11	18.23	0.12	82.63
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-16	10/11/96	13-23.5	100.57	ND	Dry	ND	Dry
	9/19/01			ND	22.47	ND	78.10
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	17.84	ND	82.73
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL PAVED OVER					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL GROWN OVER					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			ND	Dry	ND	NA
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
MW-21	8/13/96	TD-40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93

TABLE 1
GROUND WATER ELEVATION DATA

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			ND	DRY	ND	DRY
	5/28/03			ND	22.02	ND	74.34

Notes:
1) Ground Water elevations corrected for free product using the following formula:
*GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.*
2) ND - not detected
3) NA - data not available.

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-1	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-2	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-4R	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-5	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**165**	**5,860**	BDL	BDL	**249**	**64**
	9/18/02	**15,200**	684	291	2,278	**18,453**	**13,500**	NA	1.5	**356**	NA
	5/28/03	**11,400**	213	136	1,641	**13,390**	**13,200**	NA	1.8	**385**	NA
MW-7B	10/11/96	**35**	94	43	174	**346**	BDL	NA	BDL	**18**	**16**
	8/20/98	**31**	15	41	141	**228**	BDl	NA	BDL	**41**	**10**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.77	BDL	1.1	4.6	7.47	5.75	NA	BDL	BDL	NA
MW-8	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-9B	10/11/96	**45**	285	46	212	**588**	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	2.75	BDL	2.03	4.78	BDL	BDL	BDL	BDL	BDL
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	**0.11**	BDL	NA
MW-10	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-11	10/11/96	BDL	BDL	BDL	BDL	BDL	4.67	NA	BDL	BDL	BDL
	8/20/98	BDL	0.8	0.9	BDL	1.7	BDL	NA	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	2.2	1	BDL	BDL	3.2	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12R	9/18/02	**139**	BDL	BDL	BDL	**139**	1.3	NA	**0.18**	**11.1**	NA
	5/28/03	**178**	BDL	BDL	1.7	**179.7**	BDL	NA	**0.14**	**19.2**	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-13	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-13R	9/18/02	5,010	18,600	1,990	12,540	38,140	973	NA	3.6	456	NA
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-14B	10/11/96	7,800	18,100	2,300	10,600	38,800	BDL	NA	BDL	BDL	695
	8/20/98	7,225	12,612	1,244	6192	27,273	158	NA	42.4	403	153
	9/19/01	5,740	16,500	2,420	12,470	37,130	15.2	459	16.9	1,040	1,113
	9/18/02	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	3.3	BDL	BDL	BDL	3.3	6.9	NA	BDL	2.1	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	6.54	NA	BDL	BDL	NA
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	1.71	BDL	BDL	BDL	NA
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	7.05	3.81	23.5	34.36	1.85	NA	BDL	BDL	NA
MW-17	10/11/96	BDL	BDL	BDL	BDL	BDL	1.71	NA	BDL	BDL	BDL
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-18R	5/28/03	BDL	BDL	BDL	BDL	BDL	8.94	NA	BDL	BDL	NA
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	1	BDL	BDL	1	BDL	NA	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-19R	9/18/02	BDL	BDL	BDL	BDL	BDL	36.9	NA	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-20	10/11/96	10,800	17,800	1,900	9,240	39,740	1,800	NA	BDL	BDL	660
	8/20/98	9,950	19,800	3,050	16,150	48,950	1,500	NA	678	5,150	519
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-20R	9/18/02	14,500	25,000	2,040	8,590	50,130	1,010	NA	46	446	NA
	5/29/03	5,180	10,100	799	4,540	20,619	209	NA	E-67	393	NA
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA

TABLE 2
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO. 06443
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	TOTAL BTEX (ug/l)	MTBE (ug/l)	TMB (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-24	10/11/96	BDL	135	155	715	1005	BDL	NA	BDL	BDL	**48**
	8/20/98	2.6	2	12	86	102.6	BDL	NA	0.18	**12.9**	**16.7**
	9/19/01	BDL	BDL	BDL	BDL	BDL	4.67	BDL	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	6.4	6.4	BDL	NA	BDL	1.6	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	NA
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**9,345**	**447**	NA	BDL	**480**	**420**
	8/20/98	**3,081**	19	6	3,046	**6,152**	**788**	NA	2.48	**393**	**144**
	9/19/01	2.64	5.37	2.1	42.2	52.31	BDL	17.6	BDL	1.09	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**740**	4.58	BDL	269.8	**1,014.38**	**562**	NA	**0.34**	**112**	NA
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	**39,470**	BDL	NA	BDL	BDL	**655**
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**43,802**	**200**	NA	**45**	**728**	**367.4**
	9/19/01	**999**	**4,220**	**906**	4,660	**10,785**	BDL	346	BDL	**2,070**	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	**38,080**	<100	NA	**E-15**	**672**	NA
RBSL	--	*5*	*1,000*	*700*	*10,000*	--	*40*	--	*5*	*10*	*10*

Notes:

1 *Results shown in boldface type indicate concentrations which exceed the RBSL for that compound*
2 *BDL - below laboratory method detection limit*
3 *ug/l - micrograms per liter or parts per billion*
4 *NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis*
5 *NA- data not available*
6 *MTBE - Methyl-tert-butyl-ether*
7 *TMB- 1,3,5 Trimethylbenzene*
8 *EDB - 1,2- Dibromomethane*
9 *PAHs - Total Polunuclear Aromatic Hydrocarbons as 1-Methylnaphthalene, 2-methylnaphthalene, and the 5 South Carolina specified parameters, Benzo(a)anthracene, Benzo(b)fluoroanthene, Benzo(k)fluroanthene, Chrysene, and Dibenzo(a,h)anthracene.*
10 *RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document*
11 *FP - Free Product detected in well, greater than 0.1 foot thickness.*

TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	DISSOLVED OXYGEN (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	METHANE (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-1	5/28/03	FP	FP	FP	FP	FP	FP	FP
MW-2	5/28/03	FP	FP	FP	FP	FP	FP	FP
MW-4R	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/28/03	FP	FP	FP	FP	FP	FP	FP
MW-5	5/28/03	FP	FP	FP	FP	FP	FP	FP
MW-6	9/19/01	NA	0.18	12.90	BDL	BDL	6.6	0.131
	9/18/02	0.9	BDL	15.00	BDL	BDL	7	0.140
	5/28/03	2.56	NA	NA	NA	NA	6.35	0.263
MW-7B	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS - NO ACCESS TO WELL, UNDER DUMPSTER						
	5/28/03	1.6	NA	NA	NA	NA	6.37	0.008
MW-8	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-8R	9/18/02	1.86	BDL	10.0	0.1	BDL	5.6	0.082
	5/28/03	2.61	NA	NA	NA	NA	5.3	0.017
MW-9B	9/19/01	NS	NS	NS	NS	NA	NS	0.012
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.67	NA	NA	NA	NA	5.71	0.005
MW-10	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/28/03	7.95	NA	NA	NA	NA	4.6	0.045
MW-11	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/29/03	2.10	NA	NA	NA	NA	5.5	BDL
MW-12	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-12R	9/18/02	1.36	3.5	5.0	0.35	BDL	5.6	0.049
	5/28/03	1.96	NA	NA	NA	NA	5.4	BDL
MW-13	9/19/01	NS	NS	NS	NS	NS	NS	NS
MW-13R	9/18/02	1.0	BDL	12.0	4.0	BDL	6.1	0.010
	5/28/03	FP	FP	FP	FP	FP	FP	FP

TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	DISSOLVED OXYGEN (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	METHANE (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-14B	9/19/01	NS	NS	NS	NS	NA	Sheen	0.017
	9/18/02	FP	FP	FP	FP	FP	FP	FP
	5/28/03	FP	FP	FP	FP	FP	FP	FP
MW-15	9/19/01	NA	BDL	12.9	0.4	BDL	6.6	BDL
	9/18/02	1.05	BDL	14	BDL	BDL	6.1	0.110
	5/28/03	3.46	NA	NA	NA	NA	6.24	BDL
MW-16	9/19/01	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/28/03	6.38	NA	NA	NA	NA	5.11	BDL
MW-17	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	WELL DESTROYED						
MW-18	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	WELL LOST						
MW-18R	5/28/03	5.65	NA	NA	NA	NA	5.46	BDL
MW-19	9/19/01	NS	NS	NS	NS	NA	NS	NS
MW-19R	9/18/02	1.27	4.4	6	0.25	BDL	5.4	0.040
	5/29/03	3.12	NA	NA	NA	NA	5.31	BDL
MW-20	9/19/01	NS	NS	NS	NS	NS	NS	0.006
MW-20R	9/18/02	1.19	620	10	0.55	BDL	5.6	0.510
	5/29/03	2.11	NA	NA	NA	NA	5.22	0.028
MW-21	9/19/01	NA	4.21	3.64	BDL	BDL	NA	0.073
	9/18/02	1.63	11.1	9	BDL	BDL	5.4	2.210
	5/28/03	2.02	NA	NA	NA	NA	6.15	BDL
MW-22	9/19/01	NA	1.9	2.29	BDL	BDL	6.8	7.970
	9/18/02	1.57	1.7	5	36	BDL	5.6	0.493
	5/29/03	6.59	NA	NA	NA	NA	4.6	0.005
MW-24	9/19/01	NA	NS	NS	NS	NA	NS	NS
	9/18/02	1.01	0.4	6	BDL	BDL	6	0.310
	5/29/03	4.89	NA	NA	NA	NA	6.44	BDL

TABLE 3
GROUND WATER ANALYTICAL DATA
Inorganic Compounds

FORMER CROWN SC-576
McCormick, SC
SCDHEC SITE NO.
EMS Project No. 2125-036

WELL NUMBER	SAMPLE DATE	DISSOLVED OXYGEN (mg/l)	NITRATE (mg/l)	SULFATE (mg/l)	FERROUS IRON (mg/l)	METHANE (mg/l)	Ph (SU)	Total Lead (mg/l)
MW-25	9/19/01	NS	NS	NS	NS	NA	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/29/03	1.94	NA	NA	NA	NA	6.13	BDL
MW-26	9/19/01	NS	NS	NS	NS	NA	NS	0.068
	9/18/02	NS	NS	NS	NS	NS	NS	NS
	5/29/03	1.54	NA	NA	NA	NA	5.48	BDL

Notes: 1 NA -not analyzed
2 NS - not sampled due to insufficient water unles otherwise noted.
3 BDL - Blow Detection Limits
4 FP - Free Product present in well

GEOLOGIST LOGS

EARTH
MANAGEMENT
SYSTEMS, INC.

WELL NO. MW-18R

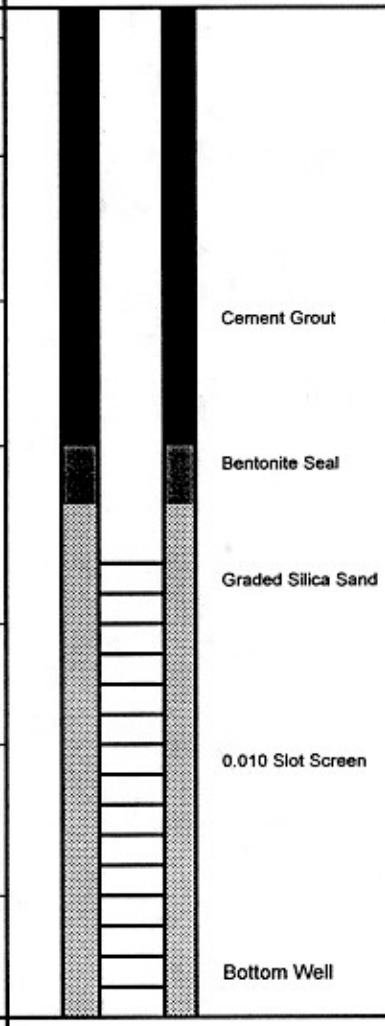
SHEET _____ of _____

GEOLOGIC LOG

Project Name: SC-576	Project Number: 2125-036	Location: McCormick, SC
Driller: Rich Lemire, SAEDACCO, Inc.	Logged By: G. Partin	Installation Date: 4-28-03
Total Depth (ft.): 33	Sample Method(s): Split Spoon, Auger	Development Method: Pump
TOC Elevation (ft.): 98.75	Water Level / Date: 16.23 btoc / 5/28/03	Water Elevation (ft.): 82.52
Casing Interval (ft.): 0-18	Screen Interval (ft.): 18-23	Well Material: 2 inch, Schedule 40 PVC
Grout Interval (ft.): 0-14	Bentonite Interval (ft.): 14-16	Sand Interval (ft.): 16-33

Depth (feet)	OVA (ppm)	Sample Description
0		Grass as Surface
2		
4		
6	0	Clayey Silt, bright orange, firm, friable, dry, no odor
8		
10	0	Clayey Silt, orangish tan, firm, dry, no odor
12		
14		
16	0	Clayey Silt, more clay content, trace sand, firm, moist, no odor
18		
20	0	
22		Clayey Silt as above
24		
26	0	Clayey Silt as above, saturated
28		
30	0	Clayey Silt as above
32		
34		
36		
38		
40		
42		
44		
46		
48		
50		

Well Construction Details



GROUND WATER ANALYTICAL DATA

ACCESS
ANALYTICAL, INC.

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46076
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-6
Collected: 05/28/03 12:55
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.263	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	13200	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
Benzene	11400	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
Toluene	213	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
Ethylbenzene	136	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
m & p-Xylene	491	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
o-Xylene	1150	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
Total Xylene	1641	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
Naphthalene	385	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:44AR
SURROGATE: Toluene-D8	106.75%						
SURROGATE: Bromofluorobenzene	94.40%						
SURROGATE: Dibromofluoromethane	107.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	E-2.2	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46076
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-6
Collected: 05/28/03 12:55
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	E-1.8	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: CT.=#PH0217, LA.=#9601, MD.=#271, MA.=#M-FL535
SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46077
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-7B
Collected: 05/28/03 11:45
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.008	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	5.75	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
Benzene	1.77	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
Ethylbenzene	1.10	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
m & p-Xylene	3.53	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
o-Xylene	1.03	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
Total Xylene	4.6	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:02AR
SURROGATE: Toluene-D8	104.00%						
SURROGATE: Bromofluorobenzene	105.20%						
SURROGATE: Dibromofluoromethane	103.50%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46077
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-7B
Collected: 05/28/03 11:45
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46078
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-8R
Collected: 05/28/03 11:20
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.017	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	20:45AR
SURROGATE: Toluene-D8	107.75%						
SURROGATE: Bromofluorobenzene	99.60%						
SURROGATE: Dibromofluoromethane	97.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	0.041	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46078
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-8R
Collected: 05/28/03 11:20
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46080
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-9B
Collected: 05/28/03 14:45
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.005	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	21:29AR
SURROGATE: Toluene-D8	101.25%						
SURROGATE: Bromofluorobenzene	100.40%						
SURROGATE: Dibromofluoromethane	109.75%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	0.43	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46080
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-9B
Collected: 05/28/03 14:45
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	0.11	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46081
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-10
Collected: 05/28/03 15:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.045	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:11AR
SURROGATE: Toluene-D8	105.00%						
SURROGATE: Bromofluorobenzene	98.40%						
SURROGATE: Dibromofluoromethane	105.00%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46081
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-10
Collected: 05/28/03 15:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46082
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-11
Collected: 05/28/03 14:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	01:01AR
SURROGATE: Toluene-D8	99.75%						
SURROGATE: Bromofluorobenzene	101.60%						
SURROGATE: Dibromofluoromethane	102.75%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	T-0.30	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46082
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-11
Collected: 05/28/03 14:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: CT.=#PH0217, LA.=#9601, MD.=#271, MA.=#M-FL535
SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46083
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-12R
Collected: 05/28/03 15:40
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
Benzene	178	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
m & p-Xylene	1.71	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
Total Xylene	1.7	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
Naphthalene	19.2	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	22:54AR
SURROGATE: Toluene-D8	99.75%						
SURROGATE: Bromofluorobenzene	108.00%						
SURROGATE: Dibromofluoromethane	96.50%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	0.045	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46083
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-12R
Collected: 05/28/03 15:40
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	0.14	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
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SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46084
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-15
Collected: 05/28/03 13:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	6.54	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
Toluene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/30/2003	05/30/2003	23:36AR
SURROGATE: Toluene-D8	99.00%						
SURROGATE: Bromofluorobenzene	100.00%						
SURROGATE: Dibromofluoromethane	103.00%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46084
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-15
Collected: 05/28/03 13:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46085
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-16
Collected: 05/28/03 14:05
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	1.85	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
Toluene	7.05	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
Ethylbenzene	3.81	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
m & p-Xylene	15.6	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
o-Xylene	7.94	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
Total Xylene	23.5	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	00:19AR
SURROGATE: Toluene-D8	108.25%						
SURROGATE: Bromofluorobenzene	106.00%						
SURROGATE: Dibromofluoromethane	109.50%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46085
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-16
Collected: 05/28/03 14:05
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46086
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-18R
Collected: 05/28/03 17:10
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	8.94	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:10SKL
SURROGATE: Toluene-D8	95.75%						
SURROGATE: Bromofluorobenzene	110.40%						
SURROGATE: Dibromofluoromethane	112.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46086
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-18R
Collected: 05/28/03 17:10
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46087
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-19R
Collected: 05/29/03 12:40
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:30SKL
SURROGATE: Toluene-D8	93.75%						
SURROGATE: Bromofluorobenzene	113.60%						
SURROGATE: Dibromofluoromethane	106.50%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46087
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-19R
Collected: 05/29/03 12:40
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46088
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-20R
Collected: 05/29/03 12:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.028	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003 16:31	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	209	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
Benzene	5180	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
Toluene	10100	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
Ethylbenzene	799	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
m & p-Xylene	2900	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
o-Xylene	1640	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
Total Xylene	4540	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
Naphthalene	393	ug/L	5030/8260B	1.000	06/31/2003	05/31/2003	09:00PMD
SURROGATE: Toluene-D8	99.25%						
SURROGATE: Bromofluorobenzene	110.00%						
SURROGATE: Dibromofluoromethane	101.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	3.1	ug/L	8011	0.020	06/02/2003	06/02/2003	11:47E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46088
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-20R
Collected: 05/29/03 12:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	E-67	ug/L	8011	0.020	06/02/2003	06/02/2003	11:47E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46089
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-21
Collected: 05/28/03 18:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003 16:31	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	04:49SKL
SURROGATE: Toluene-D8	103.75%						
SURROGATE: Bromofluorobenzene	109.60%						
SURROGATE: Dibromofluoromethane	111.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46089
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-21
Collected: 05/28/03 18:15
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46090
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-22
Collected: 05/29/03 10:50
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	0.005	mg/L	SM3113B (239.2)	0.005	06/01/2003	06/01/2003 09:08	MG
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003 05:08	SKL
SURROGATE: Toluene-D8	97.00%						
SURROGATE: Bromofluorobenzene	111.20%						
SURROGATE: Dibromofluoromethane	111.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46090
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-22
Collected: 05/29/03 10:50
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: CT.=#PH0217, LA.=#9601, MD.=#271, MA.=#M-FL535
SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46091
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-24
Collected: 05/29/03 11:50
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
Benzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
Toluene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
m & p-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
o-Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
Total Xylene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
Naphthalene	BDL	ug/L	5030/8260B	1.000	05/31/2003	05/31/2003	05:28SKL
SURROGATE: Toluene-D8	101.75%						
SURROGATE: Bromofluorobenzene	102.00%						
SURROGATE: Dibromofluoromethane	111.75%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46091
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-24
Collected: 05/29/03 11:50
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.

Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46092
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-25
Collected: 05/29/03 11:10
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	1			
Methyl-Tert-Butyl-Ether	562	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
Benzene	740	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
Toluene	4.58	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
Ethylbenzene	BDL	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
m & p-Xylene	8.81	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
o-Xylene	261	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
Total Xylene	269.8	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
Naphthalene	112	ug/L	5030/8260B	1.000	06/02/2003	06/02/2003	14:35SKL
SURROGATE: Toluene-D8	97.75%						
SURROGATE: Bromofluorobenzene	112.00%						
SURROGATE: Dibromofluoromethane	112.75%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	0.35	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46092
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-25
Collected: 05/29/03 11:10
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	0.34	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

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Company Representative

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46093
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-26
Collected: 05/29/03 11:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Lead	BDL	mg/L	SM3113B (239.2)	0.005	05/30/2003	05/31/2003	NMO
8260B BTEX w/Naph+MTBE in Water by GC/MS (S.C.)			MEDF	100			
Methyl-Tert-Butyl-Ether	BDL	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
Benzene	6110	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
Toluene	15300	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
Ethylbenzene	2650	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
m & p-Xylene	9580	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
o-Xylene	4440	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
Total Xylene	14020	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
Naphthalene	672	ug/L	5030/8260B	100.000	05/31/2003	05/31/2003	09:58PMD
SURROGATE: Toluene-D8	99.75%						
SURROGATE: Bromofluorobenzene	110.80%						
SURROGATE: Dibromofluoromethane	105.25%						
SUB 8011 EDB, DBCP in Surface Waters/GroundWa			MEDF	1			
1,2-Dibromo-3-Chloropropane (DBCP)	<0.020	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

Gene Partin
Earth Management Systems
3025 McNaughton Drive

Columbia, SC 29223

June 6, 2003
Report # 305001520
Order # 46093
STL Miami Cert ID# 96023
NELAP ID# E86349

Site Location/Project
South Carolina
SC-576

Sample I.D.: MW-26
Collected: 05/29/03 11:30
Received: 05/30/03 10:00
Collected by: Dlaton Reames

PARAMETER	RESULT	UNITS	METHOD	DETECTION LIMIT	DATE EXT.	DATE ANALY.	ANALYST
Ethylene Dibromide (EDB)	E-15	ug/L	8011	0.020	06/02/2003	06/02/2003	E81010

REPORT COMMENTS:
BDL: Indicates Analyte is Below Detection Limit MEDF: Matrix Effected Dilution Factor
Unless otherwise noted, mg/Kg denotes wet weight

Unless otherwise noted in analyst section, all work performed by STL MIAMI.
10200 USA Today Way, Miramar Florida 33025. (954) 431-4550 (South Carolina Cert ID# 96023)
Certs: CT.=#PH0217, LA.=#9601, MD.=#271, MA.=#M-FL535
SC.=#96023, TN.=#TN02826,P.R.=FL-00535,AL=41180
Unless otherwise noted, samples submitted for EPA 5035 were collected,preserved and analyzed in accordance with all methodology requirements.
* UNABLE TO RUN LOWER DUE TO MATRIX.

Company Representative

Access Analytical - Chain of Custody Record

Laboratory ID: 572-M

Project Submission #: IV 03105-1520 46076-46093 RUSH # _____ PO #: 2125-036

Company Name: Earth Management	Preservative (*see codes below)	1	2	0				
Address: 3025 A McNaughton Rd	REQUESTED LAB ANALYSIS →	BTEX, MTBE, Naph	Lead	EDB 8011				
City: Columbia, State: SC Zip: 29223								
Project Name: SC-576								
Report To: Gene Parth								
Sampled By (print): Dalton Reames								

Sample Label	Date Collected	Time Collected	Matrix	# of Cont							NOTES / COMMENTS
MW-6	5/28/03	1255	GW	5	X	X	X		46076		
MW-7B	5/28/03	1145							46077		
MW-8R	5/28/03	1120							46078		
MW-9B	5/28/03	1445							46080		1Quote 602
MW-10	5/28/03	1515							46081		
MW-11	5/29/03	1430							46082		
MW-12R	5/28/03	1540							46083		
MW-15	5/28/03	1330							46084		
MW-16	5/28/03	1405							46085		
MW-18R	5/28/03	1710							46086		

ACCESS ANALYTICAL, INC.

Phone: (803) 781-4243
1248 Lake Murray Blvd. Fax: 781-4303
Irmo, SC 29063 Toll Free (888) 315-4243
www.accessanalyticalinc.com

Turnaround Time:

✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice? ✓ Yes ___ No — A.I.C

Project Location: ✓ SC ___ NC ___ Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
Dalton Reames	5/29/03	1600	
	5/29/03	1630	FEDEX
FEDEX			
	5/30/03	10:00	NOE VARGAS / STC

* Preservative Codes *(place corresponding # in block above analysis field)*: 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

Access Analytical, Inc.
See Reverse for Terms and Conditions

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

Access Analytical - Chain of Custody Record

Laboratory ID: _____

Project Submission #: 315-1520 RUSH # _____ PO #: 2125-036

Company Name: Earth Management

Address: 3025 A McNaughton Rd

City: Columbia, State: SC Zip: 29223

Project Name: SC-576

Report To: Gene Partin

Sampled By (print): Dalton Reames

Preservative (*see codes below): 1 2 0

ACCESS ANALYTICAL, INC.

1248 Lake Murray Blvd.
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	REQUESTED LAB ANALYSIS	BTEX, Naph, MTBE	Lead	EDB 8011					NOTES / COMMENTS
MW-19 R	5/29/03	1240	GW	5		X	X	X		46087			
MW-20 R	5/29/03	1215								46088			
MW-21	5/28/03	1815								46089			
MW-22	5/29/03	1050								46090			
MW-24	5/29/03	1150								46091			
MW-25	5/29/03	1110								46092			
MW-26	5/29/03	1130								46093			

Turnaround Time:

✓ Std. (5-7 Bus. days)

___RUSH*

*Date Required:_____

(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?

___Yes

___No

Project Location:

✓ SC

___NC

___Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
Dalton Reames	5/29/03	1600	[signature]
[signature]	5/29/03	1630	FEDEX
FEDEX			

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

Access Analytical, Inc.
See Reverse for Terms and Conditions

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

FIELD DATA INFORMATION SHEETS

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-1

Well Diameter (D): 2 inch or _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 3.81 feet 19.34 PL
Depth to Ground Water (DGW) 23.15 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)							
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = SC = 1000 3.81 Product Thickness - Not Sampled

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny/Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-2

Well Diameter (D): 2 inch or _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 5.89 feet 17.50 PL
Depth to Ground Water (DGW) 23.39 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)							
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO= ST= 5.89 Product Thickness - Post Sampling

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: ____ Well #: MW-4R

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: 1.33 feet 19.51 PL
Depth to Ground Water (DGW) ~~20.64~~ feet 20.54
Total Well Depth (TWD) 30.5 feet
Length of Water Column (LWC = TWD - DGW) 9.65 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 1.57 gals
3 Casing Volume 3 X CV = 4.72 gals (standard purge volume)

Total Volume of Water Purged Before Sampling ~~4.75~~ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		1.5	3.25	4.75			
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO= ST = 1215 Free Product (1.33) No Sample Taken

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-57
Facility ID#: _____ Well #: MW-5

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: .83 feet 21.77 PL
Depth to Ground Water (DGW) 22.6 feet
Total Well Depth (TWD) 32.8 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = ____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)							
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = ST = .83 Product Thickness - Not Sampled.

...ld Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: ~~Sunny~~ Sunny / Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-526
Facility ID#: _____ Well #: MW-6

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 20.27 feet
Total Well Depth (TWD) 58.0 feet
Length of Water Column (LWC = TWD - DGW) 37.73 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 6.15 gals
3 Casing Volume 3 X CV = 18.45 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 18.5 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		6.25	12.5	18.5			
Time (military)							
pH (s.u.)		6.58	6.50	6.35			
Specific Cond. (µmhos/cm)		400	345	343			
Water Temperature (°C)		22.5	22.8	23.1			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 2.56 ST = 1255

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-575
Facility ID#: ____ Well #: MW-7B

Well Diameter (D): 2 inch or ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 18.0 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) 12.0 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 1.96 gals
3 Casing Volume 3 X CV = 5.87 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 6.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.0	4.0	6.0			
Time (military)							
pH (s.u.)		6.31	6.35	6.37			
Specific Cond. (µmhos/cm)		687	702	703			
Water Temperature (°C)		21.0	21.2	21.3			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 1.55 ST = 1145

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Ramos
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-57C
Facility ID#: ____ Well #: MW-8R

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 22.97 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) 17.03 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 2.78 gals
3 Casing Volume 3 X CV = 8.33 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 8.25 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.75	5.5	8.25			
Time (military)							
pH (s.u.)		5.44	5.27	5.28			
Specific Cond. (µmhos/cm)		60	39	41			
Water Temperature (°C)		21.0	20.3	20.2			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 2.61 ST = 1120

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: ____ Well #: MW-9B

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 18.12 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) 11.88 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 1.94 gals
3 Casing Volume 3 X CV = ~~5.81~~ 5.81 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 6.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.0	4.0	6.0			
Time (military)							
pH (s.u.)		5.53	5.67	5.71			
Specific Cond. (µmhos/cm)		~~134~~ 124	157	159			
Water Temperature (°C)		21.3	20.4	20.4			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 1.67 ST = 1445

2 casing

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny/Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-10

Well Diameter (D): 2 Inch or _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 14.05 feet
Total Well Depth (TWD) 18.0 feet
Length of Water Column (LWC = TWD - DGW) 3.95 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = .64 gals
3 Casing Volume 3 X CV = 1.93 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 1.25 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		.50	1.25	~~2.0~~			
Time (military)							
pH (s.u.)		4.61	4.58				
Specific Cond. (µmhos/cm)		79	76				
Water Temperature (°C)		19.8	20.0				
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO - 7.95 SC - 1515 Dry at ... 1.25 gal

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reames
General Weather Conditions: Mostly Cloudy/Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-11

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 9.65 feet
Total Well Depth (TWD) 15.0 feet
Length of Water Column (LWC = TWD - DGW) 5.35 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = .87 gals
3 Casing Volume 3 X CV = 2.62 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 2.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		1.0	2.0	~~2.75~~			
Time (military)							
pH (s.u.)		5.66	5.52				
Specific Cond. (µmhos/cm)		98	83				
Water Temperature (°C)		20.0	19.7				
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 2.10 ST = 1430 Purged at 2.0 gal

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Ramos
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: ____ °C

Facility Name: SC-526
Facility ID#: ____ Well #: MW-12R

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 17.96 feet
Total Well Depth (TWD) 45.0 feet
Length of Water Column (LWC = TWD - DGW) 27.04 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 4.40 gals
3 Casing Volume 3 X CV = 13.21 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 13.25 gals

* If free product is present over 1/8 inch, sampling will not be required

Quality Assurance

pH Meter		Conductivity Meter	
serial no.	____	serial no.	____
pH=4.0	____	standard	____
pH=7.0	____	standard	____
pH=10.0	____	standard	____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		4.5	9.0	13.25			
Time (military)							
pH (s.u.)		5.30	5.29	5.35			
Specific Cond. (µmhos/cm)		110	106	109			
Water Temperature (°C)		22.3	22.4	22.6			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 1.96 ST = 1540

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-575
Facility ID#: _____ Well #: MW-13R

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: .30 feet 18.30 PL
Depth to Ground Water (DGW) 18.60 feet
Total Well Depth (TWD) 44.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)							
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO= ST = ~~1645~~ ~~1650~~ .30 Product Level - Sample Not Taken

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Remas
General Weather Conditions: Sunny/Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-14B

Well Diameter (D): 2 inch or _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: .12 feet (8.11 PL
Depth to Ground Water (DGW) 18.23 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) _____ feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = _____ gals
3 Casing Volume 3 X CV = _____ gals (standard purge volume)

Total Volume of Water Purged Before Sampling _____ gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)							
Time (military)							
pH (s.u.)							
Specific Cond. (µmhos/cm)							
Water Temperature (°C)							
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO= ST= .12 PL No Sample Taken

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/24/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-15

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 20.18 feet
Total Well Depth (TWD) 130.0 feet
Length of Water Column (LWC = TWD - DGW) 109.82 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 18.0 gals
3 Casing Volume 3 X CV = 54.0 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 54.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		18.0	36.0	54.0			
Time (military)							
pH (s.u.)	6.19 →		6.22	6.24			
Specific Cond. (µmhos/cm)	160 →		151	151			
Water Temperature (°C)	22.7 →		22.8	22.9			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 3.46 ST = 1330

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D.R Barnes
General Weather Conditions: Sunny / Hot

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-57C
Facility ID#: _____ Well #: MW-16

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 17.84 feet
Total Well Depth (TWD) 23.5 feet
Length of Water Column (LWC = TWD - DGW) 5.66 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = .92 gals
3 Casing Volume 3 X CV = 2.77 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 2.75 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		1.0	2.0	2.75			
Time (military)							
pH (s.u.)	5.48	5.25	5.17	5.11			
Specific Cond. (µmhos/cm)	89	82	80	83			
Water Temperature (°C)	19.4	18.7	18.2	18.3			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 6.78 ST = 1405

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Ramos
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-56
Facility ID#: _____ Well #: MW-18R

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 16.23 feet
Total Well Depth (TWD) 33.0 feet
Length of Water Column (LWC = TWD - DGW) 16.77 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 2.73 gals
3 Casing Volume 3 X CV = 5.20 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 8.25 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.75	5.50	8.25			
Time (military)							
pH (s.u.)	~~6.0~~	5.36	5.42	5.46			
Specific Cond. (µmhos/cm)		158	146	148			
Water Temperature (°C)		21.2	20.8	20.6			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 5.65 ST = 1710

0

Field [redacted] Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reames
General Weather Conditions: Sunny/Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-19R

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 12.29 feet
Total Well Depth (TWD) 45.0 feet
Length of Water Column (LWC = TWD - DGW) 32.71 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 5.33 gals
3 Casing Volume 3 X CV = 16.0 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 16.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		5.25	10.5	16.0			
Time (military)							
pH (s.u.)		5.76	5.79	5.71			
Specific Cond. (µmhos/cm)		119	107	105			
Water Temperature (°C)		20.0	19.7	19.6			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 3.17 ST = ~~1235~~ 1240

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reames
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: ____ Well #: MW-20R

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 20.75 feet
Total Well Depth (TWD) 49.5 feet
Length of Water Column (LWC = TWD - DGW) 28.75 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 4.69 gals
3 Casing Volume 3 X CV = 14.06 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 14.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		4.75	9.5	14.0				
Time (military)								
pH (s.u.)		5.18	5.20	5.22				
Specific Cond. (µmhos/cm)		147	156	158				
Water Temperature (°C)		19.7	19.9	20.1				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 2.11 ST = 1215

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/28/03
Field Personnel: D. Ramos
General Weather Conditions: Sunny/Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-21

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 20.53 feet
Total Well Depth (TWD) 40.3 feet
Length of Water Column (LWC = TWD - DGW) 19.77 feet

1 Casing Volume (CV = LWC X C) = _____ X _____ = 3.22 gals
3 Casing Volume 3 X CV = 9.67 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 9.75 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		3.25	6.5	9.75			
Time (military)							
pH (s.u.)		6.04	6.10	6.15			
Specific Cond. (µmhos/cm)		234	235	236			
Water Temperature (°C)		18.1	17.4	17.6			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 2.02 ST = 1815

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reames
General Weather Conditions: Sunny/Mild

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter		Conductivity Meter	
serial no.		serial no.	
pH=4.0		standard	
pH=7.0		standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-526
Facility ID#: ____ Well #: MW-22

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 26.97 feet
Total Well Depth (TWD) 42.0 feet
Length of Water Column (LWC = TWD - DGW) 15.03 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 2.45 gals
3 Casing Volume 3 X CV = 7.35 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 7.25 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.5	5.0	7.25			
Time (military)							
pH (s.u.)		4.87	4.67	4.60			
Specific Cond. (µmhos/cm)		52	48	48			
Water Temperature (°C)		17.9	17.6	17.5			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 6.59 ST = 1050

0

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reynas
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: _____ Well #: MW-24

Well Diameter (D): 2 Inch or _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 22.24 feet
Total Well Depth (TWD) 40.0 feet
Length of Water Column (LWC = TWD - DGW) 17.76 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 2.89 gals
3 Casing Volume 3 X CV = 8.68 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 8.75 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		2.75	5.5	8.25			
Time (military)							
pH (s.u.)		6.30	6.40	6.44			
Specific Cond. (µmhos/cm)		137	136	178			
Water Temperature (°C)		21.2	21.4	21.5			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 4.89 ST = 1150

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page _____ of _____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Raines
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: _____ °C

Quality Assurance

pH Meter
serial no. _____
pH=4.0 _____
pH=7.0 _____
pH=10.0 _____

Conductivity Meter
serial no. _____
standard _____
standard _____
standard _____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC- 576
Facility ID#: _____ Well #: MW-25

Well Diameter (D): 2 inch of _____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: _____ feet
Depth to Ground Water (DGW) 21.45 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) 8.55 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 1.39 gals
3 Casing Volume 3 X CV = 4.18 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 4.25 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling
Cumulative Volume Purged (gallons)		1.5	3.0	4.25			
Time (military)							
pH (s.u.)		5.80	6.00	6.13			
Specific Cond. (µmhos/cm)		213	303	318			
Water Temperature (°C)		19.6	19.8	20.0			
Turbidity (subjective: clear, slightly cloudy, cloudy)							
PID Readings (if required)							

Remarks: DO = 1.94 ST = 1110

Field Data Information Sheet for Ground-Water Sampling
Division of Underground Storage Tank Management

Page ____ of ____

Date (mm/dd/yy): 5/29/03
Field Personnel: D. Reynes
General Weather Conditions: Sunny / Warm

Ambient Air Temperature: ____ °C

Quality Assurance

pH Meter
serial no. ____
pH=4.0 ____
pH=7.0 ____
pH=10.0 ____

Conductivity Meter
serial no. ____
standard ____
standard ____
standard ____

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: SC-576
Facility ID#: ____ Well #: MW-2S

Well Diameter (D): 2 inch of ____ feet

Conversion factor (C): 3.14 X (D/2)² for a 2 inch well C = 0.163
for a 4 inch well C = 0.652

* Free Product Thickness: ____ feet
Depth to Ground Water (DGW) 22.02 feet
Total Well Depth (TWD) 30.0 feet
Length of Water Column (LWC = TWD - DGW) 7.98 feet

1 Casing Volume (CV = LWC X C) = ____ X ____ = 1.30 gals
3 Casing Volume 3 X CV = 3.90 gals (standard purge volume)

Total Volume of Water Purged Before Sampling 4.0 gals

* If free product is present over 1/8 inch, sampling will not be required

	Initial	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Cumulative Volume Purged (gallons)		1.25	2.5	4.0				
Time (military)								
pH (s.u.)		5.51	5.47	5.48				
Specific Cond. (µmhos/cm)		122	119	119				
Water Temperature (°C)		21.3	21.5	21.8				
Turbidity (subjective: clear, slightly cloudy, cloudy)								
PID Readings (if required)								

Remarks: DO = 1.54 SC = 1130

WASTE DISPOSAL MANIFESTS

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. .....
Manifest Document No. GK5581
2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address
FORMER CROWN SC-576
201 NORTH MINE STREET
MCCORMICK, SC

4. Generator's Phone ( )

5. Transporter 1 Company Name
G&K TANK SERVICES

6. US EPA ID Number
.987573557....

A. Transporter's Phone
803-481-4593

7. Transporter 2 Company Name

8. US EPA ID Number
.....

B. Transporter's Phone

9. Designated Facility Name and Site Address
G&K TANK SERVICES
HWY 76/378 WEST
SUMTER, SC 29154

10. US EPA ID Number
.987573557.....

C. Facility's Phone
803-481-4593

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON HAZARDOUS PETROLEUM CONTAMINANTED WATER	01	DM	55 gal	1
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
EARTH MANAGEMENT
P.O. BOX 24287
COLUMBIA, SC

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name | Signature | Month | Day | Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Frank Washington | Signature: Frank Washington | Month: 06 | Day: 02 | Year: 03

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: S. Collett | Signature: S. Collett | Month: 6 | Day: 2 | Year: 03

ORIGINAL - RETURN TO GENERATOR

Broad St. Extension • PO Box 1384 • Sumter, SC 29151
(803) 494-2694 • 1-800-800-6840 • FAX: (803) 494-8598

Certificate of Disposal

Tons 1 Drum
Former Crown SC-576
McCormick, SC

Contaminant NonHazardous Petroleum
Contaminanted Water

This is to cerify the above ~~soil~~ water* has been processed and disposed of by G & K Tank Services, Inc., in accordance with and exceeding EPA regulations on petroleum contaminated soils.

Certified by S. Silly

Date 06/02/03

TERRY ENVIRONMENTAL SERVICES
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RECEIVED
OCT 20 2003
UNDERGROUND STORAGE TANK PROGRAM

October 16, 2003

Ms. Karen M. Doran
SCDHEC BLWM UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: Fast Point # 34
201 Highway 28 & 32
McCormick, South Carolina
Permit ID# 06443; Cost Agreement # 20231

Dear Ms. Doran,

Attached are the required Bureau of Air Quality UST Modeling Forms for the referenced site. Also attached are VOC emission calculations for each site based on the worst case concentration for free phase petroleum hydrocarbons along with the required scaled site map. We will wait for approval from the Bureau of Air Quality before proceeding with the work.

Should you have any questions, please contact us at 843-873-8200.

Sincerely,

Mark L. Keller, PG
Project Manager

UST Hazel DOCKETING

Jason A. Terry, PG
President

BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE PROGRAM

Phone (803) 898-4350 Fax (803) 898-4330

BAQC UST Modeling Information

PLEASE FILL OUT COMPLETELY

FACILITY/COMPANY NAME: Fast Point # 34 UST Permit # 06443

CLEANUP LOCATION: 201 Highway 28 & 32, McCormick, South Carolina
TYPE OF OPERATION (i.e. AIR STRIPPER): Aggressive Fluid Vapor Recovery
CONTACT: Mark L. Keller, Terry Environmental Services, Inc. 843-873-8200

SITE MAPS

Please include a scaled plot plan of the facility location that clearly shows distances from the stack to the property boundaries. All buildings and/or structures within a radius of 5 stack heights (measured from the stack/vent) shall be incorporated on this plot plan and information on each building and/or structure=s height, width, and length shall also be included.

STACK INFORMATION

HEIGHT ABOVE GROUND: 15 FEET; DIAMETER: 0.5 FEET

TEMPERATURE: 150 F; VELOCITY: 60 FEET/SECOND

AIR TOXIC INFORMATION

AIR TOXIC EMITTED (i.e. BENZENE)	CHEMICAL ABSTRACT SERVICE (CAS) NUMBER	EMISSION RATE LB/HR
A) Benzene	71-43-2	0.16
B) Toluene	108-88-3	0.26
C) Ethylbenzene	100-41-4	0.28
D) Xylenes	1330-20-7	0.28
E) Naphthalene	91-20-3	0.00239
F) MTBE	540-84-1	4.2

Please submit this completed sheet with scaled site maps to _____, project manager at the Underground Storage Tank Program, 2600 Bull Street, Columbia, SC 29201.

ANNUAL VOC EMISSIONS CALCULATION WORKSHEET

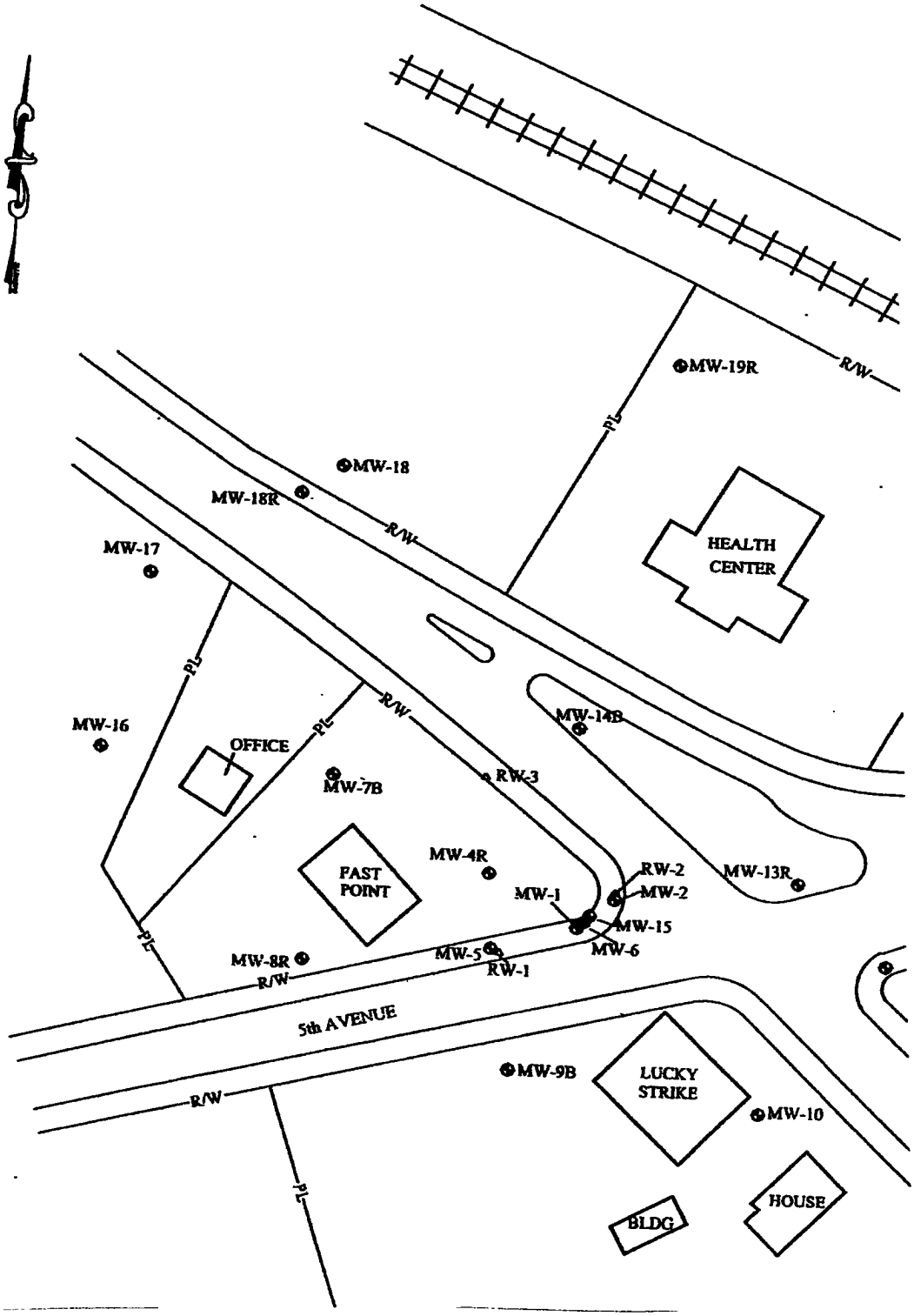
PROJECT: FAST POINT # 34, SCDHEC ID # 06443
PROJECT LOCATION: McCORMICK, SOUTH CAROLINA
PROJECT DURATION: 8 HOURS/DAY X 1 EVENT = 8 HOURS TOTAL
EMISSION CALCULATIONS: WORST CASE

Pollutant	Maximum Concentration	Molecular Weight	Maximum Flow (scfm) [2]	Conversation Factor	Emissions (lbs/l [3],	Emmissions (lbs/yr)
Benzene	226	78.1	60	1.56E-07	0.16	1.32
Toluene	301	92.1	60	1.56E-07	0.26	2.07
Ethylbenzene	280	106.16	60	1.56E-07	0.28	2.22
Xylenes	278	106.2	60	1.56E-07	0.28	2.21
MTBE	5110	88	60	1.56E-07	4.20	33.61
Naphthalene	2	128	60	1.56E-07	0.00	0.02
				Total	5.18	41.45

Notes:
1. ppm = parts per million
2. Scfm = standard cubic feet per minute
3. lbs/hr = pounds per hour

Total Annual VOC Emissions (worst case):

Total VOC (lbs/hr)	x	Total Hours/yr	=	Emissions (lbs/yr)
5.18E+00	x	8	=	41.45



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www.terryenvironmental.com

FIGURE 1
FAST POINT # 34
201 HIGHWAY 28 & 32
McCORMICK, SOUTH CAROLINA
PROJECT # 2105.26
OCTOBER, 2003
SITE ID# 06443

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RECEIVED
OCT 20 2003
UNDERGROUND STORAGE
TANK PROGRAM

October 16, 2003

Ms. Karen M. Doran
SCDHEC BLWM UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: Fast Point # 34
201 Highway 28 & 32
McCormick, South Carolina
Permit ID# 06443; Cost Agreement # 20231

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Sincerely,

Mark L. Keller, PG
Project Manager

Jason A. Terry, PG
President

BUREAU OF LAND AND WASTE MANAGEMENT
UNDERGROUND STORAGE PROGRAM

Phone (803) 898-4350 Fax (803) 898-4330

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PLEASE FILL OUT COMPLETELY

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CLEANUP LOCATION: 201 Highway 28 & 32, McCormick, South Carolina
TYPE OF OPERATION (i.e. AIR STRIPPER): Aggressive Fluid Vapor Recovery
CONTACT: Mark L. Keller, Terry Environmental Services, Inc. 843-873-8200

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PROJECT LOCATION: McCORMICK, SOUTH CAROLINA
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Xylenes	278	106.2	60	1.56E-07	0.28	2.21
MTBE	5110	88	60	1.56E-07	4.20	33.61
Naphthalene	2	128	60	1.56E-07	0.00	0.02
				Total	5.18	41.45

Notes:
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2. Scfm = standard cubic feet per minute
3. lbs/hr = pounds per hour

Total Annual VOC Emissions (worst case):

Total VOC (lbs/hr)	x	Total Hours/yr	=	Emissions (lbs/yr)
5.18E+00	x	8	=	41.45

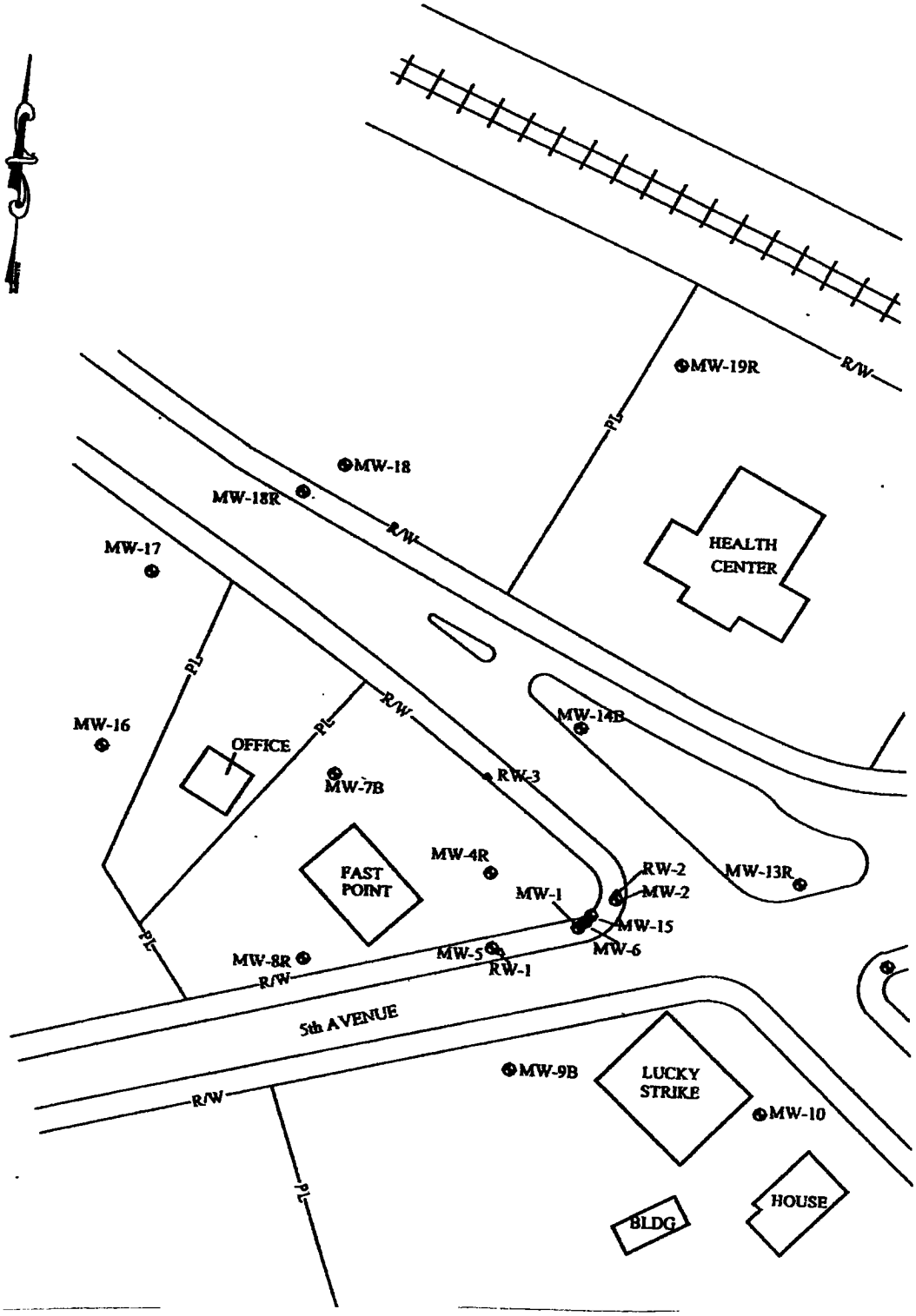

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FIGURE 1
FAST POINT # 34
201 HIGHWAY 28 & 32
McCORMICK, SOUTH CAROLINA
PROJECT # 2105.26
OCTOBER, 2003
SITE ID# 06443

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UST 43tech DOCKETING
RECEIVED
DEC 17 2003
UNDERGROUND STORAGE TANK PROGRAM

December 15, 2003

Ms. Karen M. Doran
SCDHEC UST Program
2600 Bull Street
Columbia, South Carolina 29201

Re: Fast Point #34
201 Highways 28 & 32
McCormick, South Carolina
Permit ID# 06443; Cost Agreement# 20231

Ms. Doran,

On December 5, 2003 Terry Environmental Services, Inc. (TERRY) performed an eight-hour Aggressive Fluid Vapor Recovery (AFVR) event on monitoring wells MW-1, 2, 4R, and 5 at Fast Point #34 in McCormick, South Carolina. The wells were pumped at 2 hour intervals, so as not to shut down the pumps and close the gas station to business. Monitoring wells MW-13R and MW-14B were not part of the AFVR event because of their location. In order to access these wells, a lane of traffic would have to be closed. Product thickness was gauged in each well prior to the event. MW-1 had a product thickness of 4.8 feet; MW-2 had a product thickness of 4.8; MW-4R had a product thickness of 2.6; and MW-5 had a product thickness of 2.0 feet. A scaled site map is included in the attachments as Figure 1. The stinger pipe was set six inches below the product/water interface. Once pumping began, a magnehelic gauge was used to measure vacuum pressure every thirty minutes at neighboring wells. These wells exhibited no measurable vacuum during the eight-hour AFVR event. Measurements on emissions exiting the stack of the vac truck were also taken on thirty minute intervals and are included in the attachments as Table 1. These measurements include vacuum (on the truck), temperature, velocity, humidity, and volatile concentrations in parts per million. Emission calculations are included as Table 2 in the attachments.

Upon completion of the AFVR event, MW-1, 2, 4R, and 5 were gauged again, and there was no measurable free product detected in the wells. A total of 1145 gallons of product and water were recovered during the AFVR event. The disposal manifest is included with the attachments.

Sincerely,

Kelly E. Maloney

Kelly E. Maloney
Environmental Scientist

Mark L. Keller

Mark L. Keller P.G.
Project Manager

ATTACHMENTS

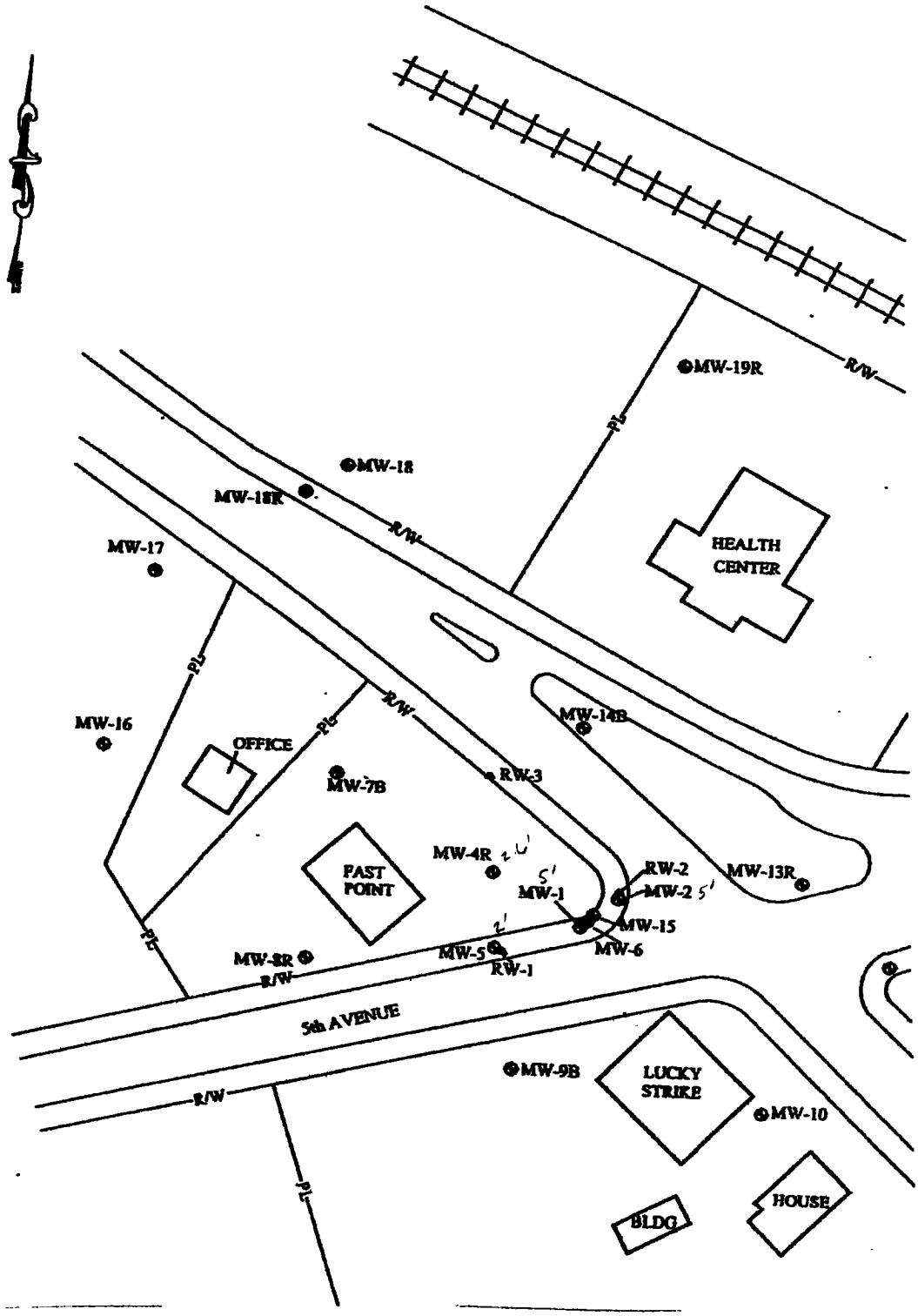

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FIGURE 1
FAST POINT # 34
201 HIGHWAY 28 & 32
McCORMICK, SOUTH CAROLINA
PROJECT # 2105.26
OCTOBER, 2003
SITE ID# 06443

Date	December 5, 2003
SITE NAME	Fast Point #34
Permit ID	06443
AVERAGE DEPTH TO GROUND WATEI	26.1 ft
DESCRIBE SOIL IN SATURATED ZONE	Unknown
Bws	0.0616419
WELL IDS	MW-1, 2, 4R, & 5
BLOWER SPECIFICATIONS OF THE VACUUM TRUCK (CFM @ in Hg) - 25	

DRY STANDARD CUBIC FEET PER MINUTE (DSCFM) AIR FLOW CALCULATIONS (Qstd)

Date	Phase	Wells	Time	Vacuum	Velocity	Pipe Id	Temp.	Rel.Humid	$PPM_{measured}$
				(inches of Hg)	(ft/min)	(in)	(F)	(%)	(ppm)
12/5/2003	1	MW-4R	7:00	23	527	3	52	99	10000
12/5/2003	1	MW-4R	7:30	23	527	3	52	99	10000
12/5/2003	1	MW-4R	8:00	23	582	3	60	99	10000
12/5/2003	1	MW-4R	8:30	23	582	3	60	99	10000
12/5/2003	1	MW-5	9:00	24	643	3	65	99	10000
12/5/2003	1	MW-5	9:30	24	643	3	65	99	10000
12/5/2003	1	MW-5	10:00	25	569	3	57	99	10000
12/5/2003	1	MW-5	10:30	25	569	3	57	99	10000
12/5/2003	1	MW-1	11:00	24	674	3	70	99	10000
12/5/2003	1	MW-1	11:30	24	674	3	70	99	10000
12/5/2003	1	MW-1	12:00	25	767	3	77	99	10000
12/5/2003	1	MW-1	12:30	25	767	3	77	99	10000
12/5/2003	1	MW-2	1:00	25	791	3	80	99	10000
12/5/2003	1	MW-2	1:30	25	791	3	80	99	10000
12/5/2003	1	MW-2	2:00	24	731	3	74	99	10000
12/5/2003	1	MW-2	2:30	24	731	3	74	99	10000
12/5/2003	1	MW-2	3:00	25	774	3	77	99	10000
Average				24.17647059	667.176	3	67.471	99	10000

Bws = 0.06164

Qstd = =(60 sec/min)(1-Bws)(V)(A)(Temp deg Rankin)

Qstd = 54.66

PPMmeasured = obtained directly from OVA or TVA

PPMwet = "wet" concentration

PPMdry = "dry" concentration

K = number of carbons in calibration gas (methane = 1)

PPMc = PPMv, volumetric concentration of VOC emissions as carbon, dry basis, at STP

Ccm = mg/dsm^3, mass concentration of VOC emissions as carbon

Mc = 12.01 mg/mg-mole, molecular wt. of carbon

K_3 = 24.07 $dsm^3/10^6$ mg-mole, mass to volume conversion factor at stp

Cc = lb/dscf, mass concentration of VOC emissions as carbon, dry basis, at STP

PMRc = lb/hr, pollutant mass removal rate of VOC's as carbon

PMRg = lb/hr, pollutant mass removal rate of VOC's as gasoline

Mg = 103 mg/mg-mole, molecular wt. of gasoline

Mcg = 89 mg/mg-mole, weight of carbon in gasoline molecule

Table 2

AFVR Emissions Calculation

December 5, 2003

SITE NAME	Fast Point #34
Permit ID	06443
AVERAGE DEPTH TO GROUND WATER	26.1 ft
DESCRIBE SOIL IN SATURATED ZONE	Unkown
Bwsw	0.041
Bws	0.06164
WELL IDS	MW-1, 2, 4R, & 5
BLOWER SPECIFICATIONS OF THE VACUUM TRUCK (CFM @ in Hg) - 25	

EMISSION CALCULATION

Elapsed time	Flow	$PPM_{measured}$	PPM_d	PPM_c	K	C_{cm}	C_c	PMR_c	PMR_g	PMR_g
(min)	(DSCFM)	(ppm)			(Hexane)	(mg/dsm^3)	(lb/dscf)	(lb/hr)	(lb/hr)	(gal/hr)
0	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
30	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
60	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
90	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
120	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
150	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
180	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
210	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
240	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
270	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
300	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
330	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
360	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
390	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
420	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
450	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
480	54.66	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21
Average	54.6603	10000.00	10656.91	63941.47	6	31904.32	1.992E-03	6.53	7.56	1.21

Total gallons of gasoline recovered from emissions = 9.67

Total pounds of gasoline recovered from emissions = 60.46

(THIS NUMBER REPRESENTS THE GALLONS RECOVERED VIA VAPORS, NOT TOTAL LIQUIDS)

Bwsw - water vapor % by wieght, i.e. pounds of water per pound of dry air, derived from the psychrometric chart (temp Vs relative hum)

Bws - water vapor by volume

EQUATIONS

PPMw = PPM measured

PPMd = (PPMw) / (1-Bws)

PMRc = Cc (Qstd) (60 min/hr)

PMRg = (PMRc) (Mg/Mcg)

PPMc = (PPM) (K)

Ccm = PPMc (Mc/K_3)

Cc = Ccm (62.43 E -9 $lb\text{-}m^3/mg\text{-}ft^3$)

Q_{std} = (60 sec/min) (1- B_{ws}) (velocity) (Pipe ID sq.ft.) [(528 °R / (Temp. + 460)] (LISTED AS FLOW ABOVE)

Bws = (B_{WSW} / 18 lb-mole H_2O) / [(1/28.84 lb-mole dry air) + B_{wsw} / 18 lb-mole H_2O)]

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. 24328 | 2. Page 1 of 1

3. Generator's Name and Mailing Address
FAST POINT #34
201 HIGHWAY 28 &32
McCORMICK, SC

4. Generator's Phone ( )
Terry Enviro
MARK KELLER
800-325-8200

5. Transporter 1 Company Name: NU-WAY INDUSTRIAL SVC., INC.
6. US EPA ID Number: SCD987596331
A. Transporter's Phone: 803-957-9175

7. Transporter 2 Company Name
8. US EPA ID Number
B. Transporter's Phone

9. Designated Facility Name and Site Address
NU-WAY ENVIRONMENTAL, INC.
1741 CALKS FERRY ROAD
LEXINGTON, SC 29073
10. US EPA ID Number
C. Facility's Phone: 803-957-9175

11. Waste Shipping Name and Description	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol
a. NON-REGULATED, NON-HAZARDOUS MATERIAL (WELL WATER)	001	T	1.145	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

13. Special Handling Instructions and Additional Information
EMERGENCY CONTACT: CHRIS RABLEY 803-957-9175
NIS# 23674

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Printed/Typed Name | Signature | Month | Day | Year

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: TC SOX | Signature: TC SOX | Month: 12 | Day: 05 | Year: 03

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.
Printed/Typed Name | Signature | Month | Day | Year

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL - RETURN TO GENERATOR

Fast Point #34
2105.26

Quantity	Item	Unit Price	Amount
1	Mob/Demob	$130.00	$130.00
1145	Disposal	$0.40	$458.00
1	8 hr. AFVR	$1240.00	$1240.00
		TOTAL	**$ 1828.00**

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May 14, 2004

Ms. Debra Thoma
SCDHEC
UST Program
2600 Bull Street
Columbia, SC 29201

RECEIVED
MAY 19 2004
UNDERGROUND STORAGE
TANK PROGRAM

RE: Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Dear Ms. Thoma:

Enclosed are the analytical results for sample(s) received by the laboratory on May 5, 2004. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,

Sherri Stabel
Sherri.Stabel@pacelabs.com
Project Manager

Enclosures

UST DOCKETING

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SC Environmental 99030
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Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197437 Project Sample Number: 9266364-001 Date Collected: 05/04/04 13:30
Client Sample ID: MW-6 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	0.95	ug/l	0.020	1.0	05/08/04 08:10	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	110	%		1.0	05/08/04 08:10	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	13000	ug/l	1000	200	05/09/04 12:49	BCK	71-43-2		
Ethylbenzene	200	J ug/l	250	50.0	05/09/04 12:49	BCK	100-41-4		
Methyl-tert-butyl ether	13000	ug/l	1000	200	05/09/04 12:49	BCK	1634-04-4		
Naphthalene	ND	ug/l	250	50.0	05/09/04 12:49	BCK	91-20-3		
Toluene	410	ug/l	250	50.0	05/09/04 12:49	BCK	108-88-3		
m&p-Xylene	600	ug/l	500	50.0	05/09/04 12:49	BCK			
o-Xylene	1600	ug/l	250	50.0	05/09/04 12:49	BCK	95-47-6		
Toluene-d8 (S)	100	%		1.0	05/09/04 12:49	BCK	2037-26-5		
4-Bromofluorobenzene (S)	103	%		1.0	05/09/04 12:49	BCK	460-00-4		
Dibromofluoromethane (S)	113	%		1.0	05/09/04 12:49	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	99	%		1.0	05/09/04 12:49	BCK	17060-07-0		

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MAY 19 2004
UNDERGROUND STORAGE
TANK PROGRAM

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NC Drinking Water	37706
SC	99006
FL NELAP	E87627

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197445 Project Sample Number: 9266364-002 Date Collected: 05/04/04 12:10
Client Sample ID: MW-7B Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 08:26	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	113	%		1.0	05/08/04 08:26	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 13:18	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 13:18	BCK	95-47-6		
Toluene-d8 (S)	100	%		1.0	05/09/04 13:18	BCK	2037-26-5		
4-Bromofluorobenzene (S)	105	%		1.0	05/09/04 13:18	BCK	460-00-4		
Dibromofluoromethane (S)	104	%		1.0	05/09/04 13:18	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	92	%		1.0	05/09/04 13:18	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197452 Project Sample Number: 9266364-003 Date Collected: 05/04/04 13:20
Client Sample ID: MW-8R Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 08:42	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	118	%		1.0	05/08/04 08:42	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 13:46	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 13:46	BCK	95-47-6		
Toluene-d8 (S)	96	%		1.0	05/09/04 13:46	BCK	2037-26-5		
4-Bromofluorobenzene (S)	101	%		1.0	05/09/04 13:46	BCK	460-00-4		
Dibromofluoromethane (S)	106	%		1.0	05/09/04 13:46	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	93	%		1.0	05/09/04 13:46	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197460 Project Sample Number: 9266364-004 Date Collected: 05/04/04 13:00
Client Sample ID: MW-9B Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 08:59	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	117	%		1.0	05/08/04 08:59	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 14:15	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 14:15	BCK	95-47-6		
Toluene-d8 (S)	100	%		1.0	05/09/04 14:15	BCK	2037-26-5		
4-Bromofluorobenzene (S)	102	%		1.0	05/09/04 14:15	BCK	460-00-4		
Dibromofluoromethane (S)	106	%		1.0	05/09/04 14:15	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	94	%		1.0	05/09/04 14:15	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197486 Project Sample Number: 9266364-005 Date Collected: 05/04/04 12:55
Client Sample ID: MW-10 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 14:44	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 14:44	BCK	95-47-6		
Toluene-d8 (S)	99	%		1.0	05/09/04 14:44	BCK	2037-26-5		
4-Bromofluorobenzene (S)	104	%		1.0	05/09/04 14:44	BCK	460-00-4		
Dibromofluoromethane (S)	105	%		1.0	05/09/04 14:44	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	94	%		1.0	05/09/04 14:44	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197494 Project Sample Number: 9266364-006 Date Collected: 05/04/04 12:10
Client Sample ID: MW-11 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 09:15	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	114	%		1.0	05/08/04 09:15	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 15:13	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 15:13	BCK	95-47-6		
Toluene-d8 (S)	98	%		1.0	05/09/04 15:13	BCK	2037-26-5		
4-Bromofluorobenzene (S)	104	%		1.0	05/09/04 15:13	BCK	460-00-4		
Dibromofluoromethane (S)	105	%		1.0	05/09/04 15:13	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	94	%		1.0	05/09/04 15:13	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197502 Project Sample Number: 9266364-007 Date Collected: 05/04/04 12:30
Client Sample ID: MW-12R Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 09:32	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	83	%		1.0	05/08/04 09:32	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	160	ug/l	5.0	1.0	05/09/04 15:42	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 15:42	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 15:42	BCK	1634-04-4		
Naphthalene	3.2	J ug/l	5.0	1.0	05/09/04 15:42	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 15:42	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 15:42	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 15:42	BCK	95-47-6		
Toluene-d8 (S)	98	%		1.0	05/09/04 15:42	BCK	2037-26-5		
4-Bromofluorobenzene (S)	98	%		1.0	05/09/04 15:42	BCK	460-00-4		
Dibromofluoromethane (S)	105	%		1.0	05/09/04 15:42	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	90	%		1.0	05/09/04 15:42	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197510 Project Sample Number: 9266364-008 Date Collected: 05/04/04 14:00
Client Sample ID: MW-15 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 10:54	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	85	%		1.0	05/08/04 10:54	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	5.4	ug/l	5.0	1.0	05/09/04 16:11	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 16:11	BCK	100-41-4		
Methyl-tert-butyl ether	8.1	ug/l	5.0	1.0	05/09/04 16:11	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 16:11	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 16:11	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 16:11	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 16:11	BCK	95-47-6		
Toluene-d8 (S)	98	%		1.0	05/09/04 16:11	BCK	2037-26-5		
4-Bromofluorobenzene (S)	102	%		1.0	05/09/04 16:11	BCK	460-00-4		
Dibromofluoromethane (S)	103	%		1.0	05/09/04 16:11	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	96	%		1.0	05/09/04 16:11	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197528 Project Sample Number: 9266364-009 Date Collected: 05/04/04 11:40
Client Sample ID: MW-16 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 11:27	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	87	%		1.0	05/08/04 11:27	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/09/04 16:39	BCK			
o-Xylene	ND	ug/l	5.0	1.0	05/09/04 16:39	BCK	95-47-6		
Toluene-d8 (S)	98	%		1.0	05/09/04 16:39	BCK	2037-26-5		
4-Bromofluorobenzene (S)	99	%		1.0	05/09/04 16:39	BCK	460-00-4		
Dibromofluoromethane (S)	104	%		1.0	05/09/04 16:39	BCK	1868-53-7		
1,2-Dichloroethane-d4 (S)	96	%		1.0	05/09/04 16:39	BCK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197536 Project Sample Number: 9266364-010 Date Collected: 05/04/04 10:55
Client Sample ID: MW-18R Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 12:00	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	86	%		1.0	05/08/04 12:00	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/11/04 21:41	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/11/04 21:41	DLK	95-47-6		
Toluene-d8 (S)	99	%		1.0	05/11/04 21:41	DLK	2037-26-5		
4-Bromofluorobenzene (S)	96	%		1.0	05/11/04 21:41	DLK	460-00-4		
Dibromofluoromethane (S)	100	%		1.0	05/11/04 21:41	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	94	%		1.0	05/11/04 21:41	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197551 Project Sample Number: 9266364-011 Date Collected: 05/04/04 10:40
Client Sample ID: MW-19 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 12:17	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	94	%		1.0	05/08/04 12:17	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/11/04 22:09	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/11/04 22:09	DLK	95-47-6		
Toluene-d8 (S)	99	%		1.0	05/11/04 22:09	DLK	2037-26-5		
4-Bromofluorobenzene (S)	93	%		1.0	05/11/04 22:09	DLK	460-00-4		
Dibromofluoromethane (S)	106	%		1.0	05/11/04 22:09	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	92	%		1.0	05/11/04 22:09	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197569 Project Sample Number: 9266364-012 Date Collected: 05/04/04 10:40
Client Sample ID: MW-19R Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 12:33	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	88	%		1.0	05/08/04 12:33	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/11/04 22:38	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/11/04 22:38	DLK	100-41-4		
Methyl-tert-butyl ether	55.	ug/l	5.0	1.0	05/11/04 22:38	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/11/04 22:38	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/11/04 22:38	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/11/04 22:38	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/11/04 22:38	DLK	95-47-6		
Toluene-d8 (S)	99	%		1.0	05/11/04 22:38	DLK	2037-26-5		
4-Bromofluorobenzene (S)	94	%		1.0	05/11/04 22:38	DLK	460-00-4		
Dibromofluoromethane (S)	106	%		1.0	05/11/04 22:38	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	92	%		1.0	05/11/04 22:38	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197577 Project Sample Number: 9266364-013 Date Collected: 05/04/04 10:10
Client Sample ID: MW-20R Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	85.	ug/l	2.0	100	05/08/04 12:50	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	90	%		1.0	05/08/04 12:50	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	15000	ug/l	1200	250	05/12/04 05:51	DLK	71-43-2		
Ethylbenzene	3500	ug/l	100	20.0	05/12/04 05:51	DLK	100-41-4		
Methyl-tert-butyl ether	1200	ug/l	100	20.0	05/12/04 05:51	DLK	1634-04-4		
Naphthalene	950	ug/l	100	20.0	05/12/04 05:51	DLK	91-20-3		
Toluene	31000	ug/l	1200	250	05/12/04 05:51	DLK	108-88-3		
m&p-Xylene	11000	ug/l	2500	250	05/12/04 05:51	DLK			
o-Xylene	5400	ug/l	1200	250	05/12/04 05:51	DLK	95-47-6		
Toluene-d8 (S)	97	%		1.0	05/12/04 05:51	DLK	2037-26-5		
4-Bromofluorobenzene (S)	98	%		1.0	05/12/04 05:51	DLK	460-00-4		
Dibromofluoromethane (S)	99	%		1.0	05/12/04 05:51	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	89	%		1.0	05/12/04 05:51	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197585 Project Sample Number: 9266364-014 Date Collected: 05/04/04 09:30
Client Sample ID: MW-21 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 13:07	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	86	%		1.0	05/08/04 13:07	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/12/04 07:47	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/12/04 07:47	DLK	95-47-6		
Toluene-d8 (S)	100	%		1.0	05/12/04 07:47	DLK	2037-26-5		
4-Bromofluorobenzene (S)	97	%		1.0	05/12/04 07:47	DLK	460-00-4		
Dibromofluoromethane (S)	103	%		1.0	05/12/04 07:47	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	92	%		1.0	05/12/04 07:47	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197593 Project Sample Number: 9266364-015 Date Collected: 05/04/04 09:35
Client Sample ID: MW-22 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 13:23	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	86	%		1.0	05/08/04 13:23	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/12/04 08:16	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/12/04 08:16	DLK	95-47-6		
Toluene-d8 (S)	100	%		1.0	05/12/04 08:16	DLK	2037-26-5		
4-Bromofluorobenzene (S)	93	%		1.0	05/12/04 08:16	DLK	460-00-4		
Dibromofluoromethane (S)	100	%		1.0	05/12/04 08:16	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	91	%		1.0	05/12/04 08:16	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197619 Project Sample Number: 9266364-016 Date Collected: 05/04/04 09:15
Client Sample ID: MW-24 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/l	0.020	1.0	05/08/04 13:40	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	88	%		1.0	05/08/04 13:40	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	71-43-2		
Ethylbenzene	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	1634-04-4		
Naphthalene	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	91-20-3		
Toluene	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	108-88-3		
m&p-Xylene	ND	ug/l	10.	1.0	05/12/04 08:45	DLK			
o-Xylene	ND	ug/l	5.0	1.0	05/12/04 08:45	DLK	95-47-6		
Toluene-d8 (S)	101	%		1.0	05/12/04 08:45	DLK	2037-26-5		
4-Bromofluorobenzene (S)	92	%		1.0	05/12/04 08:45	DLK	460-00-4		
Dibromofluoromethane (S)	105	%		1.0	05/12/04 08:45	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	91	%		1.0	05/12/04 08:45	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197627 Project Sample Number: 9266364-017 Date Collected: 05/04/04 09:45
Client Sample ID: MW-25 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	0.52	ug/l	0.020	1.0	05/08/04 13:56	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	80	%		1.0	05/08/04 13:56	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	2200	ug/l	100	20.0	05/12/04 18:51	DLK	71-43-2		
Ethylbenzene	ND	ug/l	100	20.0	05/12/04 18:51	DLK	100-41-4		
Methyl-tert-butyl ether	680	ug/l	100	20.0	05/12/04 18:51	DLK	1634-04-4		
Naphthalene	540	ug/l	100	20.0	05/12/04 18:51	DLK	91-20-3		
Toluene	ND	ug/l	100	20.0	05/12/04 18:51	DLK	108-88-3		
m&p-Xylene	ND	ug/l	200	20.0	05/12/04 18:51	DLK			
o-Xylene	45.	J ug/l	100	20.0	05/12/04 18:51	DLK	95-47-6		
Toluene-d8 (S)	99	%		1.0	05/12/04 18:51	DLK	2037-26-5		
4-Bromofluorobenzene (S)	94	%		1.0	05/12/04 18:51	DLK	460-00-4		
Dibromofluoromethane (S)	98	%		1.0	05/12/04 18:51	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	89	%		1.0	05/12/04 18:51	DLK	17060-07-0		

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

Lab Sample No: 924197643 Project Sample Number: 9266364-018 Date Collected: 05/04/04 09:55
Client Sample ID: MW-26 Matrix: Water Date Received: 05/05/04 09:45

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Semivolatiles									
EDB and DBCP in Water	Method: EPA 8011								
1,2-Dibromoethane (EDB)	70.	ug/l	2.0	100	05/08/04 14:29	JEM	106-93-4		
1-Chloro-2-bromopropane (S)	70	%		1.0	05/08/04 14:29	JEM	301-79-56		
GC/MS Volatiles									
GC/MS VOCs by 8260	Method: EPA 8260								
Benzene	8900	ug/l	500	100	05/12/04 06:49	DLK	71-43-2		
Ethylbenzene	4500	ug/l	500	100	05/12/04 06:49	DLK	100-41-4		
Methyl-tert-butyl ether	ND	ug/l	500	100	05/12/04 06:49	DLK	1634-04-4		
Naphthalene	2300	ug/l	500	100	05/12/04 06:49	DLK	91-20-3		
Toluene	20000	ug/l	2500	500	05/12/04 06:49	DLK	108-88-3		
m&p-Xylene	17000	ug/l	1000	100	05/12/04 06:49	DLK			
o-Xylene	8500	ug/l	500	100	05/12/04 06:49	DLK	95-47-6		
Toluene-d8 (S)	98	%		1.0	05/12/04 06:49	DLK	2037-26-5		
4-Bromofluorobenzene (S)	98	%		1.0	05/12/04 06:49	DLK	460-00-4		
Dibromofluoromethane (S)	101	%		1.0	05/12/04 06:49	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	92	%		1.0	05/12/04 06:49	DLK	17060-07-0		

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Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

PARAMETER FOOTNOTES

Dilution factor shown represents the factor applied to the reported result and reporting limit due to changes in sample preparation, dilution of the extract, or moisture content

Inorganic Wet Chemistry and Metals Analyses were performed at our Pace Asheville laboratory and Organic testing was performed at our Pace Charlotte laboratory unless otherwise footnoted.

Method 9071B modified to use ASE.

ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit
(S)	Surrogate

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

QC Batch: 99213 Analysis Method: EPA 8011
QC Batch Method: EPA 504.1 Analysis Description: EDB and DBCP in Water
Associated Lab Samples: 924197437 924197445 924197452 924197460 924197494 924197502

METHOD BLANK: 924213689
Associated Lab Samples: 924197437 924197445 924197452 924197460 924197494 924197502

Parameter	Units	Blank Result	Reporting Limit	Footnotes
1,2-Dibromoethane (EDB)	ug/l	ND	0.020	
1-Chloro-2-bromopropane (S)	%	125		

LABORATORY CONTROL SAMPLE & LCSD: 924213697 924213705

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	RPD	Footnotes
1,2-Dibromoethane (EDB)	ug/l	0.2500	0.2809	0.2811	112	112	0	
1-Chloro-2-bromopropane (S)					123	120		

MATRIX SPIKE: 924213713

Parameter	Units	924170707 Result	Spike Conc.	MS Result	MS % Rec	Footnotes
1,2-Dibromoethane (EDB)	ug/l	0	0.2500	0.2902	116	
1-Chloro-2-bromopropane (S)					115	

SAMPLE DUPLICATE: 924213721

Parameter	Units	924170715 Result	DUP Result	RPD	Footnotes
1,2-Dibromoethane (EDB)	ug/l	ND	ND	NC	
1-Chloro-2-bromopropane (S)	%	106	119		

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

QC Batch: 99215 — Analysis Method: EPA 8011
QC Batch Method: EPA 504.1 — Analysis Description: EDB and DBCP in Water
Associated Lab Samples: 924197510 924197528 924197536 924197551 924197569 924197577 924197585 924197593 924197619 924197627 924197643

METHOD BLANK: 924213739
Associated Lab Samples: 924197510 924197528 924197536 924197551 924197569 924197577 924197585 924197593 924197619 924197627 924197643

Parameter	Units	Blank Result	Reporting Limit	Footnotes
1,2-Dibromoethane (EDB)	ug/l	ND	0.020	
1-Chloro-2-bromopropane (S)	%	90		

LABORATORY CONTROL SAMPLE & LCSD: 924213747 924213754

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	RPD	Footnotes
1,2-Dibromoethane (EDB)	ug/l	0.5000	0.5570	0.5238	111	105	6	
1-Chloro-2-bromopropane (S)					94	90		

MATRIX SPIKE: 924213762

Parameter	Units	924197510 Result	Spike Conc.	MS Result	MS % Rec	Footnotes
1,2-Dibromoethane (EDB)	ug/l	0	0.5000	0.5012	100	
1-Chloro-2-bromopropane (S)					85	

SAMPLE DUPLICATE: 924213770

Parameter	Units	924197528 Result	DUP Result	RPD	Footnotes
1,2-Dibromoethane (EDB)	ug/l	ND	ND	NC	
1-Chloro-2-bromopropane (S)	%	87	86		

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

QC Batch: 99274 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 924197437 924197445 924197452 924197460 924197486 924197494 924197502 924197510 924197528

METHOD BLANK: 924217185
Associated Lab Samples: 924197437 924197445 924197452 924197460 924197486 924197494 924197502 924197510 924197528

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Benzene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	
Methyl-tert-butyl ether	ug/l	ND	5.0	
Naphthalene	ug/l	ND	5.0	
Toluene	ug/l	ND	5.0	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	97		
4-Bromofluorobenzene (S)	%	100		
Dibromofluoromethane (S)	%	105		
1,2-Dichloroethane-d4 (S)	%	92		

LABORATORY CONTROL SAMPLE: 924217193

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Benzene	ug/l	50.00	44.14	88	
Ethylbenzene	ug/l	50.00	46.05	92	
Methyl-tert-butyl ether	ug/l	50.00	44.74	90	
Naphthalene	ug/l	50.00	62.44	125	
Toluene	ug/l	50.00	43.02	86	
m&p-Xylene	ug/l	100.00	94.48	94	
o-Xylene	ug/l	50.00	48.48	97	
Toluene-d8 (S)				98	
4-Bromofluorobenzene (S)				104	
Dibromofluoromethane (S)				100	
1,2-Dichloroethane-d4 (S)				96	

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924217201 924217219

Parameter	Units	924197510 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Benzene	ug/l	5.397	50.00	47.19	49.45	84	88	5	
Toluene	ug/l	0	50.00	39.88	42.77	80	86	7	
Toluene-d8 (S)						98	102		
4-Bromofluorobenzene (S)						106	107		
Dibromofluoromethane (S)						100	99		
1,2-Dichloroethane-d4 (S)						94	97		

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

QC Batch: 99488 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 924197536 924197551 924197569

METHOD BLANK: 924224546
Associated Lab Samples: 924197536 924197551 924197569

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Benzene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	
Methyl-tert-butyl ether	ug/l	ND	5.0	
Naphthalene	ug/l	ND	5.0	
Toluene	ug/l	ND	5.0	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	100		
4-Bromofluorobenzene (S)	%	94		
Dibromofluoromethane (S)	%	102		
1,2-Dichloroethane-d4 (S)	%	92		

LABORATORY CONTROL SAMPLE: 924224553

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Benzene	ug/l	50.00	42.15	84	
Ethylbenzene	ug/l	50.00	42.00	84	
Methyl-tert-butyl ether	ug/l	50.00	39.21	78	
Naphthalene	ug/l	50.00	31.97	64	
Toluene	ug/l	50.00	42.88	86	
m&p-Xylene	ug/l	100.00	84.86	85	
o-Xylene	ug/l	50.00	40.89	82	
Toluene-d8 (S)				99	
4-Bromofluorobenzene (S)				94	
Dibromofluoromethane (S)				95	
1,2-Dichloroethane-d4 (S)				89	

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

QC Batch: 99490 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 924197577 924197585 924197593 924197619 924197627 924197643

METHOD BLANK: 924224629
Associated Lab Samples: 924197577 924197585 924197593 924197619 924197627 924197643

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Benzene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	
Methyl-tert-butyl ether	ug/l	ND	5.0	
Naphthalene	ug/l	ND	5.0	
Toluene	ug/l	ND	5.0	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	101		
4-Bromofluorobenzene (S)	%	91		
Dibromofluoromethane (S)	%	106		
1,2-Dichloroethane-d4 (S)	%	91		

LABORATORY CONTROL SAMPLE: 924224637

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Benzene	ug/l	50.00	39.20	78	
Ethylbenzene	ug/l	50.00	39.62	79	
Methyl-tert-butyl ether	ug/l	50.00	39.73	80	
Naphthalene	ug/l	50.00	52.50	105	
Toluene	ug/l	50.00	40.00	80	
m&p-Xylene	ug/l	100.00	79.26	79	
o-Xylene	ug/l	50.00	39.16	78	
Toluene-d8 (S)				99	
4-Bromofluorobenzene (S)				98	
Dibromofluoromethane (S)				90	
1,2-Dichloroethane-d4 (S)				92	

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QUALITY CONTROL DATA

Lab Project Number: 9266364
Client Project ID: Fast Point 34 20938-06443

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924224645 924224652

Parameter	Units	924203607 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Benzene	ug/l	0	50.00	42.22	43.57	84	87	3	
Toluene	ug/l	0	50.00	41.35	42.73	83	86	3	
Toluene-d8 (S)						99	100		
4-Bromofluorobenzene (S)						104	97		
Dibromofluoromethane (S)						97	101		
1,2-Dichloroethane-d4 (S)						99	95		

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Client Project ID: Fast Point 34 20938-06443

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

LCS(D)	Laboratory Control Sample (Duplicate)
MS(D)	Matrix Spike (Duplicate)
DUP	Sample Duplicate
ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit
RPD	Relative Percent Difference
(S)	Surrogate

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Page: 1 of 2

Required Client Information: **Section A**

Company	SCDHEC - UST
Address	2600 Bull ST. Columbia SC 29201
Phone	896-6240
Fax	—

Required Client Information: **Section B**

Report To:	D. THOMA
Copy To:	—
Invoice To:	Finance
P.O.	463276
Project Name:	FAST Point 34
Project Number:	20938-06443

Client Information (Check quote/contract):

Requested Due Date: *TAT:

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.

Turn Around Time (TAT) in calendar days.

To Be Completed by Pace Analytical and Client **Section C**

Quote Reference:	
Project Manager:	
Project #:	9266364
Profile #:	1700

Section D **Required** Client Information:

SAMPLE ID

One character per box. (A–Z, 0–9 / .–)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

Requested Analysis: BTEX + Napth + MTBE 8260B; EDB 8011

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED (mm / dd / yy)	TIME COLLECTED (hh:mm a/p)	# Containers	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	BTEX + Napth + MTBE 8260B	EDB 8011	Remarks / Lab ID
1	MW-6	WT	5-4-04	1330	6	X			X					X		924197437 PT odor
2	MW-7B			1210												924197445
3	MW-8R			1320												924197452
4	MW-9B			1300	6	X									X	924197460
* 5	MW-10			1255					X					X		924197406 Insufficient H2O
6	MW-11			1210	6	X									X	924197494
7	MW-12R			1230	6											924197502
8	MW-15			1400	6											924197510
9	MW-16			1140	4	X			X					X	X	924197520 Insufficient H2O
10	MW-18R			1055	6											924197536
11	MW-19			1040	6											924197551
12	MW-19R	WT	5-4-04	1040	6				X					X	X	924197569

SITE LOCATION
☐ NC ☒ SC ☐ GA
☐ Other

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ Other

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
B. Walling	5-4-04	1600	[signature]	5/5/04	0945

SAMPLE CONDITION

Temp in °C	0.7
Received on Ice	Y/N
Sealed Cooler	Y/N
Samples Intact	Y/N

SAMPLE NOTES

Wells MW-1, 2, 4R, 5, 13, 13R, 14B, 20 had free Phase Petroleum Product in the well & were not sampled

Additional Comments: MW-8 was Dry

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: B. Walling

SIGNATURE of SAMPLER: [signature]

DATE Signed: (MM / DD / YY) 5-4-04

SEE REVERSE SIDE FOR INSTRUCTIONS

Form COC01 Rev. 0903

Instructions for completing Chain of Custody (COC)

1. Complete all Client Information at top of sheet: name, address, phone, contact (person to whom report will be sent and contact can be made if questions arise), billing information if different from client, PO#, Project Name and/or Project Number as it will appear on the report.

2. Quote Reference, Project Manager, Project No. and Profile No. will be completed by Pace.

3. A separate COC must be filled out for each day of sample collection.

4. Sampler should print their name in the space provided and sign their name followed by the date of the sampling event.

5. Complete Sample Description as it will appear on the laboratory report; include time of sampling, sample matrix, no. of containers and preservative used.

6. Analysis Requested: Complete analysis on the lines provided and place a check in the column for the samples requiring the analysis. It may be necessary to use the space provided for additional comments or include attachments for extended lists of parameters.

7. Submission of samples to laboratory: Indicate Item Number of those samples being transferred; sign relinquished by, and include your affiliation.

*** IMPORTANT NOTE:**

Standard Turnaround Time is 2 weeks. If this does not satisfy your requirements, arrangements must be made prior to samples being submitted to the laboratory. Contact your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be indicated on the chain of custody. (Use Additional Comments Section.)

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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795648

Page: 2 of 2

Section A — Required Client Information:

Company: SCDHEC - UST
Address: 2600 Bull ST
Columbia, SC 29201
Phone: 896-6240 Fax:

Section B — Required Client Information:

Report To: D Thomas
Copy To:
Invoice To: Finance
P.O. 463276
Project Name: Fast Point 34
Project Number: 20938-06443

Client Information (Check quote/contract):
Requested Due Date: *TAT:

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calendar days.

Section C — To Be Completed by Pace Analytical and Client

Quote Reference:
Project Manager:
Project #:
Profile #:

Section D — Required Client Information:

SAMPLE ID
One character per box.
(A–Z, 0–9 / .–)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED (mm / dd / yy)	TIME COLLECTED (hh:mm a/p)	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis: BTEX + Naphthalene 8260 VOC	EDB 8011	Remarks / Lab ID
1	MW-20R	WT	5-4-04	1010										X	X	924197527
2	MW-21	"	"	930										"	"	924197505
3	MW-22	"	"	935										"	"	924197593
4	MW-24	"	"	915										"	"	924197619
5	MW-25	"	"	945										"	"	924197627
6	MW-26	WT	5-4-04	955										X	X	924197643
7																
8																
9																
10																
11																
12																

SITE LOCATION
☐ NC ☒ SC ☐ GA ☐ Other

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ Other

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-4-04	1600		5/5/04	0945

SAMPLE CONDITION

Temp in °C	0.7
Received on Ice	(Y)N
Sealed Cooler	(Y)N
Samples Intact	(Y)N

SAMPLE NOTES

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: D Wallings
SIGNATURE of SAMPLER:
DATE Signed: (MM / DD / YY) 5-4-04

3

SEE REVERSE SIDE FOR INSTRUCTIONS

Form COC01 Rev. 0903

Instructions for completing Chain of Custody (COC)

1. Complete all Client Information at top of sheet: name, address, phone, contact (person to whom report will be sent and contact can be made if questions arise), billing information if different from client, PO#, Project Name and/or Project Number as it will appear on the report.

2. Quote Reference, Project Manager, Project No. and Profile No. will be completed by Pace.

3. A separate COC must be filled out for each day of sample collection.

4. Sampler should print their name in the space provided and sign their name followed by the date of the sampling event.

5. Complete Sample Description as it will appear on the laboratory report; include time of sampling, sample matrix, no. of containers and preservative used.

6. Analysis Requested: Complete analysis on the lines provided and place a check in the column for the samples requiring the analysis. It may be necessary to use the space provided for additional comments or include attachments for extended lists of parameters.

7. Submission of samples to laboratory: Indicate Item Number of those samples being transferred; sign relinquished by, and include your affiliation.

*** IMPORTANT NOTE:**

Standard Turnaround Time is 2 weeks. If this does not satisfy your requirements, arrangements must be made prior to samples being submitted to the laboratory. Contact your project manager.

Special Project Requirements such as Low Level Detection Limits or level of QC reported must be indicated on the chain of custody. (Use Additional Comments Section.)

John Sending in two batches

FAX TRANSMITTAL

DICK ENVIRONMENTAL SERVICES, LLC

No. of pages: 19/6 (including cover page)

Date: 7/7/2004

#06443

DELIVER TO: John Surver

COMPANY: SCDHEC UST Program

FAX NUMBER 803 896 6245

FROM: Jed

COMPANY: Dick Environmental Services, LLC

Mailing address: 915 Folly Rd, Suite O, Box 30
Charleston, SC 29412
(843) 402-6808

FAX NUMBER: (843) 402-6808

RECEIVED
JUL 07 2004
UNDERGROUND STORAGE TANK PROGRAM

SUBJECT: Fast Point

UST 45 tech DOCKETING

NOTE: If you do not receive the correct number of pages as indicated above, please call (904) 363-0911 as soon as possible.

"This facsimile contains confidential information intended only for the use of the addressee(s) named above and may contain information that is legally privileged. If you are not the addressee, or the person responsible for delivering it to the addressee, you are hereby notified that reading, disseminating, distributing or copying this facsimile is strictly prohibited. If you have received this facsimile by mistake, please, immediately notify us by telephone and return the original message to us at the address above via the U.S. Postal Service (we will reimburse postage). Thank you."

Sorry John - sent on 6-9-04 - must have got lost

Jed

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of 1

3. Generator's Name and Mailing Address: Midlands Environmental PO 854 Lexington SC 29071

4. Generator's Phone: (803) 808 2043

BRIAN SHANE
MIDLANDS ENVIRO.

5. Transporter 1 Company Name: Same as Above | 6. US EPA ID Number | A. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | B. Transporter's Phone

9. Designated Facility Name and Site Address: NU-WAY ENVIRONMENTAL, INC.
1741 CAUKS FERRY ROAD
LEXINGTON, SC 29073

10. US EPA ID Number | C. Facility's Phone: 803-957-9175

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-REGULATED, NON-HAZARDOUS MATERIAL (POW / PURGE WATER)		BM		P
b. Fast Point 34 SCDHEC site ID. # 06443			49.5	G
c.				
d.				

D. Additional Descriptions for Materials Listed Above | E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

EMERGENCY CONTACT CHRIS RABLEY 803-957-9175
NRS# 23484

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: Bryan T. Shane | Signature: BTShane | Month | Day | Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Thad Raymond | Signature | Month | Day | Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Chris Rabley | Signature: Chris Rabley | Month: 05 | Day: 05 | Year: 10

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL - RETURN TO GENERATOR

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www.pacelabs.com

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

795646

Page: 1 of 2

Required Client Information: Section A

Company	SCDHEC - UST
Address	2600 Bull ST.
	Columbia SC 29201
Phone	896-6240
Fax	—

Required Client Information: Section B

Report To:	D. THOMA
Copy To:	—
Invoice To:	Finance
P.O.	463276
Project Name:	FAST Point 34
Project Number:	20938-06443

Client Information (Check quote/contract):
Requested Due Date: *TAT:

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calendar days.

To Be Completed by Pace Analytical and Client Section C

Quote Reference:
Project Manager:
Project #:
Profile #:
Requested Analysis:

Section D Required Client Information:

SAMPLE ID
One character per box.
(A–Z, 0–9 / .–)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED mm / dd / yy	TIME COLLECTED hh:mm a/p	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	BTEX + Naphthalene 8260B	EDB 8011	Remarks / Lab ID
1	M -	WT	5.4.04	1330	6	X			X							PT odor
2	M - B			1210												
3	M - R			1320												
4	M - B			1300	6	X										
5	M - 0			1255					X							Insufficient H2O
6	M - 1			1210	6	X										
7	M - 2			1230	6											
8	M - 5			1400	6											
9	M - 6			1140	4	X			X							Insufficient H2O
10	M - 8			1055	6											
11	M - 9			1040	6											
12	M - 9	WT	5.4.04	1040	6				X							

SITE LOCATION
☐ NC ☒ SC ☐ GA
☐ Other

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ Other

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
B Walling	5.4.04	1600			

SAMPLE CONDITION

Temp in °C	
Received on Ice	Y/N
Sealed Cooler	Y/N
Samples Intact	Y/N

SAMPLE NOTES
Wells MW-1, 2, 4R, 5, 13, 13R, 14B, 20 had free Phase Petroleum Product in the well & were not sampled

Additional Comments: MW-8 was DRY

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: B. Walling
SIGNATURE of SAMPLER: [signature]
DATE Signed: (MM / DD / YY) 5-4-04

SEE REVERSE SIDE FOR INSTRUCTIONS

Form COC01 Rev 1

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The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

795648

Page: 2 of 2

To Be Completed by Pace Analytical and Client

Section A — Required Client Information:

Company: SCDHEC - UST
Address: 2600 Bull ST
Columbia, SC 29201
Phone: 896240 Fax:

Section B — Required Client Information:

Report To: D Thomas
Copy To:
Invoice To: Finance
P.O.: 463276
Project Name: Fast Point 34
Project Number: 20938-06443

Client Information (Check quote/contract):
Requested Due Date: *TAT:

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn-Around Time (TAT) in calendar days.

Section C

Quote Reference:
Project Manager:
Project #:
Profile #:

Section D — Required Client Information:

SAMPLE ID
One character per box.
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

Requested Analysis: BTEX + Naphthalene, 8260 w/ 5 oxy, EDB, EDC

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED (mm / dd / yy)	TIME COLLECTED (hh:mm a/p)	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Remarks / Lab ID
1	MW-2R	WT	5-4-04	1010										
2	MW-1	"	"	930										
3	MW-2	"	"	935										
4	MW-4	"	"	915										
5	MW-5	"	"	945										
6	MW-6	WT	5-4-04	955										
7														
8														
9														
10														
11														
12														

SITE LOCATION
☐ NC ☒ SC ☐ GA
☐ Other

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ Other

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
	5-4-04	1600			

SAMPLE CONDITION

Temp in °C	
Received on Ice	Y/N
Sealed Cooler	Y/N
Samples Intact	Y/N

SAMPLE NOTES

Additional Comments:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: D. Walling
SIGNATURE of SAMPLER:
DATE Signed: (MM / DD / YY) 5-4-04

2

SEE REVERSE SIDE FOR INSTRUCTIONS

Form COC01 Rev 0

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-1

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	3.22		feet
Depth to Free Product (DFP)	22.59		feet
Depth to Ground Water (DGW)	25.81		feet
Total Well Depth (TWD)	29		feet
Length of the water column (LWC=TWD-DGW)		3.19	feet
1 casing volume (CV=LWC X C)=	0.163	0.51997	gallons
3 casing volume (3 X CV)=	3	1.55991	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-2

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	3.25		feet
Depth to Free Product (DFP)	21.15		feet
Depth to Ground Water (DGW)	24.40		feet
Total Well Depth (TWD)	28		feet
Length of the water column (LWC=TWD-DGW)		3.6	feet
1 casing volume (CV=LWC X C)=	0.163	0.5868	gallons
3 casing volume (3 X CV)=	3	1.7604	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-4R

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	1.45		feet
Depth to Free Product (DFP)	24.58		feet
Depth to Ground Water (DGW)	26.03		feet
Total Well Depth (TWD)	30.5		feet
Length of the water column (LWC=TWD-DGW)		4.47	feet
1 casing volume (CV=LWC X C)=	0.163	0.72861	gallons
3 casing volume (3 X CV)=	3	2.18583	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-5

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	0.44		feet
Depth to Free Product (DFP)	24.61		feet
Depth to Ground Water (DGW)	25.05		feet
Total Well Depth (TWD)	30		feet
Length of the water column (LWC=TWD-DGW)		4.95	feet
1 casing volume (CV=LWC X C)=	0.163	0.80685	gallons
3 casing volume (3 X CV)=	3	2.42055	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-6

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	23.11		feet
Total Well Depth (TWD)	55		feet
Length of the water column (LWC=TWD-DGW)		31.89	feet
1 casing volume (CV=LWC X C)=	0.163	5.19807	gallons
3 casing volume (3 X CV)=	3	15.59421	gallons

Total Volume of Water Purged Before Sampling 12 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 12 gallons	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1310	1320	1330				
pH (s.u.)		9.62	6.53	6.87				
Specific Conductivity (µmhos/cm)		765	376.6	341.8				
Water Temperature (°C)		22.1	21.4	21.9				
Dissolved Oxygen		1.77	2.05	2.03				
PID readings, if required								

Remarks: Sample Time: 1330 - Product odor encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-7B

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	24.23		feet
Total Well Depth (TWD)	30		feet
Length of the water column (LWC=TWD-DGW)		5.77	feet
1 casing volume (CV=LWC X C)=	0.163	0.94051	gallons
3 casing volume (3 X CV)=	3	2.82153	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1210						
pH (s.u.)		6.25						
Specific Conductivity (µmhos/cm)		555						
Water Temperature (°C)		20.6						
Dissolved Oxygen		1.54						
PID readings, if required								

Remarks: Sample Time: 1210

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-8

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	0		feet
Total Well Depth (TWD)	20		feet
Length of the water column (LWC=TWD-DGW)		20	feet
1 casing volume (CV=LWC X C)=	0.163	3.26	gallons
3 casing volume (3 X CV)=	3	9.78	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. MW-8 dry at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-8R

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	25.71		feet
Total Well Depth (TWD)	40		feet
Length of the water column (LWC=TWD-DGW)		14.29	feet
1 casing volume (CV=LWC X C)=	0.163	2.32927	gallons
3 casing volume (3 X CV)=	3	6.98781	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1320						
pH (s.u.)		6.99						
Specific Conductivity (µmhos/cm)		79.1						
Water Temperature (°C)		20.2						
Dissolved Oxygen		1.50						
PID readings, if required								

Remarks: Sample Time: 1320

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by Date/Time

Received by Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-9B

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	21.59		feet
Total Well Depth (TWD)	30		feet
Length of the water column (LWC=TWD-DGW)		8.41	feet
1 casing volume (CV=LWC X C)=	0.163	1.37083	gallons
3 casing volume (3 X CV)=	3	4.11249	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1300						
pH (s.u.)		4.83						
Specific Conductivity (µmhos/cm)		81.8						
Water Temperature (°C)		18.9						
Dissolved Oxygen		1.69						
PID readings, if required								

Remarks: Sample Time: 1300

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-10

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	17.98		feet
Total Well Depth (TWD)	18		feet
Length of the water column (LWC=TWD-DGW)		0.02	feet
1 casing volume (CV=LWC X C)=	0.163	0.00326	gallons
3 casing volume (3 X CV)=	3	0.00978	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1255						
pH (s.u.)		NT						
Specific Conductivity (µmhos/cm)		NT						
Water Temperature (°C)		NT						
Dissolved Oxygen		NT						
PID readings, if required								

Remarks: Sample Time: Insufficient water for sampling. One 8260-B vial collected.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-11

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	13.92		feet
Total Well Depth (TWD)	15		feet
Length of the water column (LWC=TWD-DGW)		1.08	feet
1 casing volume (CV=LWC X C)=	0.163	0.17604	gallons
3 casing volume (3 X CV)=	3	0.52812	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1210						
pH (s.u.)		5.81						
Specific Conductivity (µmhos/cm)		43.2						
Water Temperature (°C)		18.6						
Dissolved Oxygen		3.02						
PID readings, if required								

Remarks: Sample Time: 1210

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-12

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)			feet
Total Well Depth (TWD)			feet
Length of the water column (LWC=TWD-DGW)		0	feet
1 casing volume (CV=LWC X C)=	0.163	0	gallons
3 casing volume (3 X CV)=	3	0	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Unable to locate MW-12 at time of sampling.

John Sending in three ~~four~~ batches

FAX TRANSMITTAL

DICK
ENVIRONMENTAL SERVICES, LLC

No. of pages: ~~12~~ 10 **(including cover page)**

Date: 7/7/2004

DELIVER TO: John Surver

COMPANY: SCDHEC UST Program

FAX NUMBER 803 896 6245

FROM: Jed

COMPANY: **Dick Environmental Services, LLC**

Mailing address: 915 Folly Rd, Suite O, Box 30
Charleston, SC 29412
(843) 402-6808

FAX NUMBER: (843) 402-6808

RECEIVED
JUL 07 2004
UNDERGROUND STORAGE TANK PROGRAM

SUBJECT: Fast Point

NOTE: If you do not receive the correct number of pages as indicated above, please call (904) 363-0911 as soon as possible.

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Sorry John - sent on 6-9-04 - must have got lost.

Jed

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-12R

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	21.27		feet
Total Well Depth (TWD)	35		feet
Length of the water column (LWC=TWD-DGW)		13.73	feet
1 casing volume (CV=LWC X C)=	0.163	2.23799	gallons
3 casing volume (3 X CV)=	3	6.71397	gallons

Total Volume of Water Purged Before Sampling 3 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 3 gallons	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1225	1230					
pH (s.u.)		5.60	5.51					
Specific Conductivity (µmhos/cm)		121.7	124.7					
Water Temperature (°C)		21.1	21.1					
Dissolved Oxygen		1.78	1.87					
PID readings, if required								

Remarks: Sample Time: 1230

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-13

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

* Free Product Thickness:	0.02		feet
Depth to Free Product (DFP)	20.68		feet
Depth to Ground Water (DGW)	20.70		feet
Total Well Depth (TWD)	25		feet
Length of the water column (LWC=TWD-DGW)		4.3	feet
1 casing volume (CV=LWC X C)=	0.163	0.7009	gallons
3 casing volume (3 X CV)=	3	2.1027	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-13R

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

* Free Product Thickness:	0.22		feet
Depth to Free Product (DFP)	21.25		feet
Depth to Ground Water (DGW)	21.47		feet
Total Well Depth (TWD)	44		feet
Length of the water column (LWC=TWD-DGW)		22.53	feet
1 casing volume (CV=LWC X C)=	0.163	3.67239	gallons
3 casing volume (3 X CV)=	3	11.01717	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-14B

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

* Free Product Thickness:	0.08		feet
Depth to Free Product (DFP)	23.42		feet
Depth to Ground Water (DGW)	23.50		feet
Total Well Depth (TWD)	40		feet
Length of the water column (LWC=TWD-DGW)		16.5	feet
1 casing volume (CV=LWC X C)=	0.163	2.6895	gallons
3 casing volume (3 X CV)=	3	8.0685	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-15

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163; for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	22.63		feet
Total Well Depth (TWD)	130		feet
Length of the water column (LWC=TWD-DGW)	107.37		feet
1 casing volume (CV=LWC X C)=	0.163	17.50131	gallons
3 casing volume (3 X CV)=	3	52.50393	gallons

Total Volume of Water Purged Before Sampling 18 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 18 gallons	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1350	1400					
pH (s.u.)		7.13	7.21					
Specific Conductivity (µmhos/cm)		147.3	155.6					
Water Temperature (°C)		21.7	23.3					
Dissolved Oxygen		3.04	2.90					
PID readings, if required								

Remarks: Sample Time: 1400

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-16

Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	21.41		feet
Total Well Depth (TWD)	23.5		feet
Length of the water column (LWC=TWD-DGW)		2.09	feet
1 casing volume (CV=LWC X C)=	0.163	0.34067	gallons
3 casing volume (3 X CV)=	3	1.02201	gallons

Total Volume of Water Purged Before Sampling 0 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1140						
pH (s.u.)		NT						
Specific Conductivity (µmhos/cm)		NT						
Water Temperature (°C)		NT						
Dissolved Oxygen		NT						
PID readings, if required								

Remarks: Sample Time: Insufficient water for sampling. Two vials of each were collected.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-17

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)			feet
Total Well Depth (TWD)			feet
Length of the water column (LWC=TWD-DGW)		0	feet
1 casing volume (CV=LWC X C)=	0.163	0	gallons
3 casing volume (3 X CV)=	3	0	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Unable to locate MW-17 at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-18

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)			feet
Total Well Depth (TWD)			feet
Length of the water column (LWC=TWD-DGW)		0	feet
1 casing volume (CV=LWC X C)=	0.163	0	gallons
3 casing volume (3 X CV)=	3	0	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Unable to locate MW-18 at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-18R

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	22.83		feet
Total Well Depth (TWD)	33		feet
Length of the water column (LWC=TWD-DGW)		10.17	feet
1 casing volume (CV=LWC X C)=	0.163	1.65771	gallons
3 casing volume (3 X CV)=	3	4.97313	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1055						
pH (s.u.)		4.92						
Specific Conductivity (µmhos/cm)		109.6						
Water Temperature (°C)		19.0						
Dissolved Oxygen		3.72						
PID readings, if required								

Remarks: Sample Time: 1055

John sending in three ~~two~~ batches

FAX TRANSMITTAL

DICK
ENVIRONMENTAL SERVICES, LLC

No. of pages: ~~7~~ 10 **(including cover page)**

RECEIVED
JUL 07 2004
UNDERGROUND STORAGE TANK PROGRAM

Date: 7/7/2004

DELIVER TO: John Surver

COMPANY: SCDHEC UST Program

FAX NUMBER 803 896 6245

FROM: Jed

COMPANY: **Dick Environmental Services, LLC**

Mailing address: 915 Folly Rd, Suite O, Box 30
Charleston, SC 29412
(843) 402-6808

FAX NUMBER: (843) 402-6808

SUBJECT: Fast Point

NOTE: If you do not receive the correct number of pages as indicated above, please call (904) 363-0911 as soon as possible.

"This facsimile contains confidential information intended only for the use of the addressee(s) named above and may contain information that is legally privileged. If you are not the addressee, or the person responsible for delivering it to the addressee, you are hereby notified that reading, disseminating, distributing or copying this facsimile is strictly prohibited. If you have received this facsimile by mistake, please, immediately notify us by telephone and return the original message to us at the address above via the U.S. Postal Service (we will reimburse postage). Thank you."

Sorry John - sent on 6-9-04 - must have got lost.

Jed

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04
Field Personnel: Thad Raymond, Brent Walling, Chad McClary
General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by Date/Time Received by Date/Time

Facility Name: Fast Point 34
Site ID#: 06443 **Monitoring Well #** MW-19
Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	19.04		feet
Total Well Depth (TWD)	22.5		feet
Length of the water column (LWC=TWD-DGW)		3.46	feet
1 casing volume (CV=LWC X C)=	0.163	0.56398	gallons
3 casing volume (3 X CV)=	3	1.69194	gallons

Total Volume of Water Purged Before Sampling 0 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1040						
pH (s.u.)		5.63						
Specific Conductivity (µmhos/cm)		85.6						
Water Temperature (°C)		18.0						
Dissolved Oxygen		4.49						
PID readings, if required								

Remarks: Sample Time: 1040

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04
Field Personnel: Thad Raymond, Brent Walling, Chad McClary
General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34
Site ID#: 06443 **Monitoring Well #** MW-19R
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	28.75		feet
Total Well Depth (TWD)	45		feet
Length of the water column (LWC=TWD-DGW)		16.25	feet
1 casing volume (CV=LWC X C)=	0.163	2.64875	gallons
3 casing volume (3 X CV)=	3	7.94625	gallons

Total Volume of Water Purged Before Sampling 3 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 3 gallons	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1035	1040					
pH (s.u.)		5.16	5.07					
Specific Conductivity (µmhos/cm)		170.8	183.7					
Water Temperature (°C)		18.2	18.2					
Dissolved Oxygen		1.77	1.92					
PID readings, if required								

Remarks: Sample Time: 1040

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-20

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	2.07		feet
Depth to Free Product (DFP)	25.70		feet
Depth to Ground Water (DGW)	27.77		feet
Total Well Depth (TWD)	38.5		feet
Length of the water column (LWC=TWD-DGW)		10.73	feet
1 casing volume (CV=LWC X C)=	0.163	1.74899	gallons
3 casing volume (3 X CV)=	3	5.24697	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 0	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)								
pH (s.u.)								
Specific Conductivity (µmhos/cm)								
Water Temperature (°C)								
Dissolved Oxygen								
PID readings, if required								

Remarks: Sample Time: No sample taken. Free phase petroleum product encountered at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-20R

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	25.53		feet
Total Well Depth (TWD)	49.5		feet
Length of the water column (LWC=TWD-DGW)		23.97	feet
1 casing volume (CV=LWC X C)=	0.163	3.90711	gallons
3 casing volume (3 X CV)=	3	11.72133	gallons

Total Volume of Water Purged Before Sampling 11.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 11.5 gallons	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		1000	1005	1010				
pH (s.u.)		5.89	5.80	5.26				
Specific Conductivity (µmhos/cm)		172.9	101.9	135.5				
Water Temperature (°C)		18.6	17.9	18.2				
Dissolved Oxygen		1.31	1.90	2.81				
PID readings, if required								

Remarks: Sample Time: 1010 - Strong Petroleum odor observed at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-21

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163; for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	28.04		feet
Total Well Depth (TWD)	40.3		feet
Length of the water column (LWC=TWD-DGW)		12.26	feet
1 casing volume (CV=LWC X C)=	0.163	1.99838	gallons
3 casing volume (3 X CV)=	3	5.99514	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		930						
pH (s.u.)		6.46						
Specific Conductivity (µmhos/cm)		181.2						
Water Temperature (°C)		16.0						
Dissolved Oxygen		2.40						
PID readings, if required								

Remarks: Sample Time: 930

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-22

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	32.19		feet
Total Well Depth (TWD)	42		feet
Length of the water column (LWC=TWD-DGW)		9.81	feet
1 casing volume (CV=LWC X C)= _____	0.163	1.59903	gallons
3 casing volume (3 X CV)=	3	4.79709	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		935						
pH (s.u.)		5.56						
Specific Conductivity (µmhos/cm)		61.8						
Water Temperature (°C)		16.6						
Dissolved Oxygen		4.80						
PID readings, if required								

Remarks: Sample Time: 0935

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04
Field Personnel: Thad Raymond, Brent Walling, Chad McClary
General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by Date/Time Received by Date/Time

Facility Name: Fast Point 34
Site ID#: 06443 **Monitoring Well #** MW-24
Water Supply Well **Public** ____ **Private** ____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163; for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	23.95		feet
Total Well Depth (TWD)	40		feet
Length of the water column (LWC=TWD-DGW)		16.05	feet
1 casing volume (CV=LWC X C)=	0.163	2.61615	gallons
3 casing volume (3 X CV)=	3	7.84845	gallons

Total Volume of Water Purged Before Sampling 2 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) 2 Baled dry	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		915						
pH (s.u.)		6.04						
Specific Conductivity (µmhos/cm)		157.5						
Water Temperature (°C)		20.7						
Dissolved Oxygen		2.16						
PID readings, if required								

Remarks: Sample Time: 0915 - Baled Dry at 2 gallons.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04

Field Personnel: Thad Raymond, Brent Walling, Chad McClary

General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34

Site ID#: 06443 **Monitoring Well #** MW-25

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	25.21		feet
Total Well Depth (TWD)	30		feet
Length of the water column (LWC=TWD-DGW)		4.79	feet
1 casing volume (CV=LWC X C)=	0.163	0.78077	gallons
3 casing volume (3 X CV)=	3	2.34231	gallons

Total Volume of Water Purged Before Sampling 0 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		945						
pH (s.u.)		5.95						
Specific Conductivity (µmhos/cm)		275.1						
Water Temperature (°C)		18.4						
Dissolved Oxygen		2.20						
PID readings, if required								

Remarks: Sample Time: 0945 - Petroleum odor observed at time of sampling.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 05/04/04
Field Personnel: Thad Raymond, Brent Walling, Chad McClary
General Weather Conditions: Sunny

Ambient Air Temperature: 27 °C

Quality Assurance

pH Meter	YSI Model 63	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Fast Point 34
Site ID#: 06443 **Monitoring Well #** MW-26
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	24.38		feet
Total Well Depth (TWD)	30		feet
Length of the water column (LWC=TWD-DGW)		5.62	feet
1 casing volume (CV=LWC X C)=	0.163	0.91606	gallons
3 casing volume (3 X CV)=	3	2.74818	gallons

Total Volume of Water Purged Before Sampling 0 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons) within screen	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)		955						
pH (s.u.)		5.31						
Specific Conductivity (µmhos/cm)		83.2						
Water Temperature (°C)		20.7						
Dissolved Oxygen		1.40						
PID readings, if required								

Remarks: Sample Time: 0955

GAGE
GROUP
A Terracon Company

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TANK PROGRAM

February 16, 2005

Mr. John Surber
South Carolina Department of Health
and Environmental Control
Bureau of Land And Waste Management
UST Program
2600 Bull Street
Columbia, South Carolina 29201

UST
46 feet
DOCKETING

Re: **Additional Assessment Report**
Former SC-576
201 N. Mine Street
McCormick, South Carolina
UST Permit No. 06443
GAGE Project No. 73048013, Report No. 15758

Dear Mr. Surber:

GAGE Group, Inc. (GAGE), *a Terracon Company,* is pleased to submit the Additional Assessment Report for the former SC-576 site located in McCormick, South Carolina. Our findings indicate a Tier II Assessment is necessary to define the extent of the contaminant plume and to evaluate the potential risk of human exposure to the contaminants identified.

If you have any questions regarding the contents of this report, or if there is a need for further information, please contact us.

Respectfully submitted,

GAGE Group, Inc.
A Terracon Company

Norman E. Partin, Jr., C.H.M.M.
Environmental Project Manager

P. Michael Hudgins, P.G.
Senior Hydrogeologist
SC Registration No. 1137

Enclosures

cc: John Wolf / Crown Central Petroleum Corp.

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TIER ASSESSMENT REPORT
Former SC-576
McCormick, South Carolina
GAGE Project No. 73048013, Report No. 15758

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2 Ground Water Elevation Data
3 Ground Water Analytical Data - Petroleum Related Compounds

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2 Site Map
3 Site Map with Field Screening Locations
4 Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
5 Potentiometric Surface Map of the Intermediate/Deep Portion of the Shallow Aquifer
6 Benzene / MTBE/ Naphthalene Concentration Map

APPENDICES

A Geologist Logs and Water Well Records
B Ground Water Sampling Logs
C Chemical Analytical Data
D Disposal Manifests

1.0 INTRODUCTION

GAGE GROUP, Inc., *a Terracon Company,* has completed Tier II Assessment at the former SC-576 site located in McCormick, South Carolina. The purpose of the Additional Assessment was to delineate the downgradient edge of the hydrocarbon plume and evaluate the current ground water quality conditions from a release of petroleum hydrocarbons previously reported at the site. The work was performed in accordance with the SCDHEC cost agreement # 22166 dated June 17, 2004, the Risk Based Corrective Action (RBCA) guidance document prepared by SCDHEC, dated May 15, 2001, and the SCDHEC Tier II Assessment guidance document dated March 15, 2000. This report includes a description of the activities performed during this assessment, along with our current findings, conclusions and recommendations.

1.1 Facility Information

UST Permit #: **06443**
Facility Name: One Stop (Former SC-576)
201 N. Mine Street
McCormick, South Carolina

UST Owner/Operator at Time of Release

Crown Central Petroleum Corporation
Mr. John Wolf
PO Box 1168
Baltimore, MD 21203
(410) 659-4744

UST Owner Information

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One Stop
Sahjanand Inc.
813 E. Gold Street
McCormick, SC

Property Owner Information

Mahesh Patel
2811 Reidville Road
Spartanburg, SC 29301
(864) 205-8777 mobile

1.2 Site Description

Current Site Use

The site currently operates as the One Stop convenience store and gas station. The site consists of a retail convenience store and UST system, A USGS Topographic Map (McCormick Quadrangle) is included as Figure 1 as a site location map.

Description of Adjacent Land Use

The site is bordered by commercial and residential property to the west. Mine Street and the McCormick County Health Department border the site to the north. Fifth Avenue and a commercial retail property border the site to the south. A vacant lot and commercial property border the site to the east. A site vicinity map showing the surrounding land use is included as Figure 2.

Predicted Future Land Use

Based on the current land use, the site and adjacent properties will likely continue to be used as presently developed.

Topography of the site and surrounding area

Inspection of the topographic map (Figure 1) indicates the site is an elevation of approximately 535 feet mean sea level (MSL). The site and area topography is relatively flat north of 5th Avenue and slopes sharply to the east and south on the properties south of 5th Avenue.

1.3 Facility History

Date Release Reported to SCDHEC: December 13, 1989
Estimated Quantity of Product Released: Unknown
Cause of Release: Leaking Underground Storage Tanks and/or product lines

Previous assessments at this site have identified petroleum hydrocarbons in free phase and in dissolved phase in the ground water beneath the site and downgradient from the site as far as 400 feet from the UST (source) area. Free product has previously been detected in nine wells located within 150 feet of the source area.

Based on the results of the ground water sampling to date, the SCDHEC requested an additional assessment be performed to delineate the downgradient extent of the hydrocarbon plume. This report includes a summary of the field methods utilized along with the results of ground water elevation measurements, field and laboratory ground water analytical results, and our conclusions and recommendations.

2.0 FIELD SCREENING

Field screening was performed at the site on October 5, 2004. A total of four field screening borings were completed at the site (Figure 3) to evaluate the horizontal extent of COCs in ground water and to identify the optimal location for permanent monitoring wells. All boring and drilling for this project was performed by South Carolina certified well driller.

Direct-push ground water sampling was performed at each of the locations (GW-A through GW-D) using Geoprobe drilling and sampling methods. The samples were collected by pushing the Geoprobe tool to the desired depth and retrieving the rods to open a four-foot stainless-steel screen point sampler. The samples were collected using clean plastic tubing and a check valve. Ground water samples were collected in resealable plastic bags and allowed to stabilize for five minutes to allow volatile organic compounds to accumulate in the headspace of the bags. A Bacharach TLV Sniffer was used to screen the head space in the plastic bag for total organic vapors. Field screening results are summarized on Table 1.

The field screening samples were submitted to a SC Certified Laboratory and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and MTBE per EPA Method 8260. The laboratory results are summarized on Figure 3 and on Table 1. Laboratory and field screening results were submitted to the SCDHEC project manager for approval for final locations of permanent monitoring wells. Upon completion of sampling, the temporary borings were abandoned according to state regulations.

The results of the field screening indicated the plume was defined. The field screening boring locations and results are indicated on Figure 3. Field screening results were submitted to the SCDHEC project manger for approval of permanent monitoring well locations.

3.0 MONITORING WELL INSTALLATION

Five permanent monitoring wells (MW-27, PW-28, MW-29, MW-30, and PW-31) were drilled downgradient of the former SC-576 site during December 13 through 15, 2004 (Figure 2). The monitoring wells were installed in areas based on the field screening results and as approved by the SCDHEC project manager. Additionally, two double-cased wells (PW-28 and PW-31) were installed to delineate the plume in the deeper portion of the shallow aquifer.

The borings for wells MW-27, MW-29, and MW-30 were drilled to depths ranging from 26 to 40 feet using 4.25-inch inner diameter continuous-flight hollow stem augers. The borings for deep wells PW-28 and PW-31 were initially drilled to a depth of 40 feet using 10-inch diameter hollow stem augers. A six-inch diameter PVC surface casing was then installed and grouted. A six-inch boring for these wells were later drilled to a depth of 55 feet using mud rotary methods. The drilling tools and equipment were cleaned after each boring using

a high-pressure steam generator. Split-spoon soil samples were collected from select intervals. The soil samples were logged in the field by the on-site Geologist.

Monitoring wells MW-27, MW-29, and MW-30 were constructed of 2-inch diameter schedule 40 PVC casing and 15-foot lengths of 2-inch diameter PVC well screens. Monitoring wells PW-28 and PW-31 were installed with 5-feet of 2-inch diameter PVC well screen. The screens have a manufactured slot size of 0.010-inch. An appropriately graded sand filter pack was placed within the annulus opposite each well screen to a height of approximately two feet above the top of the well screen. A minimum two-foot bentonite pellet layer was placed above the sand filter pack in each well and hydrated. The remaining annulus of each well was grouted to land surface with cement grout. Well construction details are included on the Geologist Logs Appendix A and on Table 2. The Geologist logs and the water well records, as compiled by the certified driller, are included in Appendix A.

The wells were completed below-grade within steel protective manhole covers. A concrete pad was constructed around each well. After installation, the wells were developed by surging and pumping or surging and bailing until the pH and specific conductivity of the water had stabilized and the wells were producing relatively clear water. Soil cuttings and development water generated during drilling was collected and disposed by JBR Environmental Services, Spartanburg, South Carolina. The disposal manifest is included in the Appendix.

The location of each well was plotted on a site map using field measurements. The vertical elevation of each well was surveyed by GAGE personnel, referenced to the previously surveyed elevations of the existing site monitoring wells.

4.0 GROUND WATER SAMPLING AND ANALYSES

Water levels were measured in existing site monitoring wells using an electric oil and water interface meter on December 20, 2004. A total of 16 of the 34 wells were gauged but not sampled with this event. Ten wells (MW-4, MW-4R, MW-7B, MW-8, MW-10, MW-11, MW-12, MW-13, MW-16, and MW-19) were dry or had insufficient water to sample. Six wells (MW-1, MW-2, MW-5, MW-13R, MW-14B, and MW-20) had measurable thicknesses of free product and were not sampled. MW-22 was not found and assumed destroyed by new construction. The water level data was converted to elevations relative to an onsite benchmark by GAGE personnel. A summary of the water level data is presented on Table 2. Potentiometric surface maps of the upper and intermediate/deep portions of the shallow aquifer are included as Figures 4 and 5, respectively. Inspection of Figures 4 and 5 indicate the shallow ground water flows toward the northeast.

Ground water samples were collected from 17 monitoring wells at the site on December 20-21, 2004. The newly installed monitoring wells and those in which the screen did not bracket the water table (10) were purged with disposable polyethylene bailers dedicated to each well. Seven (7) wells were not purged prior to sample collection because their screens

bracketed the water table. Specific conductance, pH, and temperature were recorded during well purging prior to sample collection. The Ground Water Sampling Logs are included in Appendix B. The samples were collected with the dedicated bailers, poured into laboratory prepared containers, and placed in a cooler refrigerated with ice and delivered to Access Analytical, Inc. for analysis, accompanied with chain-of-custody documentation. Purge water was collected and disposed by JBR Environmental Services, Spartanburg, South Carolina. The disposal manifest is included in the Appendix.

All of the ground water samples were analyzed for BTEX, naphthalene, MTBE per EPA Method 8260 and EDB per EPA Method 8011. A summary of the ground water quality data from the monitoring wells is presented in Table 3. The laboratory analytical reports and chain-of-custody forms are included in Appendix C.

BTEX compound concentrations were detected above Risk Based Screening Levels (RBSLs) in wells MW-6, MW-12R, MW-20R, MW-25, MW-26, and PW-31. MTBE was detected above its 40 ug/l RBSL in wells MW-6 (15,000 ug/l), MW-20R (890 ug/l), MW-25 (370 ug/l), and PW-31 (700 ug/l). Naphthalene was detected above its 25 ug/l RBSL in wells MW-6 (400 ug/l), MW-20R (660 ug/l), MW-25 (180 ug/l), MW-26 (940 ug/l), and PW-31 (440 ug/l). EDB was detected above its 0.05 ug/l RBSL in wells MW-6 (1.2 ug/l), MW-12R (1.1 ug/l), MW-20R (54 ug/l), MW-25 (0.16 ug/l), MW-26 (6.1 ug/l), and PW-31 (42 ug/l). A site map with contaminant concentrations is included as Figure 6.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based upon the results of our site assessment activities, the ground water beneath the site and adjacent properties have been impacted by free-phase and dissolved phase petroleum hydrocarbons, sourced from the former UST system. The horizontal extent of the contaminants in the upper portion of the shallow aquifer downgradient from the UST system has been defined by the field screening and monitoring well network. The extent of the free product plume has not been defined in the area adjacent to wells MW-20, MW-20R and PW-31, approximately 300 feet downgradient of the source area.

GAGE recommends a Tier II Assessment be performed at this site. A Tier II Assessment would include additional monitoring well installation to define the horizontal and vertical extent of the hydrocarbon plume and to evaluate the potential risk of human exposure to the contaminants identified at this site. GAGE also recommends the installation of free product delineation wells downgradient of MW-20R and PW-31 and free product removal by Aggressive Fluid Vapor Recovery (AFVR). Once the plume and potential risk are defined and free product is removed, this site may be a candidate for monitored natural attenuation.

APPENDIX

TABLES

1. Ground Water Screening Data
2. Ground Water Elevation Data
3. Ground Water Analytical Data – Petroleum Related Compounds

FIGURES

1. Site Location Map
2. Site Map
3. Site Map with Field Screening Locations
4. Potentiometric Surface Map of the Upper Portion of the Shallow Aquifer
5. Potentiometric Surface Map of the Intermediate/ Deep Potion of the Shallow Aquifer
6. Benzene / MTBE / Naphthalene Concentration Map

APPENDICES

A. Geologist Logs and Water Well Records
B. Ground Water Sampling Logs
C. Chemical Analytical Data
D. Disposal Manifests

TABLES

TABLE 1
GROUND WATER SCREENING DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

SAMPLE NUMBER	SAMPLE DEPTH bgs	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	NAPHTHALENE (ug/l)
GW-A	40	BDL	BDL	BDL	BDL	BDL	BDL
GW-B	40	BDL	BDL	BDL	BDL	BDL	BDL
GW-C	38	BDL	BDL	BDL	BDL	BDL	BDL
GW-D	40	BDL	BDL	BDL	BDL	BDL	BDL

Notes:
1) BDL = Below Laboratory Detection Limits
2) bgs = below ground surface
3) ug/l = micrograms per liter or parts per billion

TABLE 2
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-1	10/11/96	NA	100.03	22.20	23.23	1.03	77.60
	9/19/01			29.40	30.01	0.61	70.50
	9/18/02	19-29'		ND	Dry	ND	Dry
	5/28/03			19.34	23.15	3.81	79.85
	12/20/04			28.37	29.57	1.20	71.40
MW-2	10/11/96	NA	99.31	20.75	23.28	2.53	78.00
	9/19/01			28.31	29.74	1.43	70.69
	9/18/02	18-28'		ND	Dry	ND	Dry
	5/28/03			17.50	23.39	5.89	80.51
	12/20/04			27.16	28.60	1.44	71.83
MW-4	10/11/96	NA	101.51	23.45	24.29	0.84	77.88
	9/19/01	17.9-27.9'		ND	Dry	ND	ND
	12/20/04			DRY	Dry	DRY	Dry
MW-4R	9/18/02	20.5-30.5	101.56	ND	Dry	ND	Dry
	5/28/03			19.51	20.84	1.33	81.75
	12/20/04			ND	29.95	ND	71.61
MW-5	10/11/96	NA	102.16	21.89	24.08	2.19	79.79
	9/19/01	20-30'		30.74	32.76	2.02	70.98
	9/18/02			ND	Dry	ND	Dry
	5/28/03			21.77	22.60	0.83	80.20
	12/20/04			29.89	30.90	1.01	72.05
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01	45-55'		ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NS	NS	NS	NS
	5/28/03			ND	18.00	ND	83.43
	12/20/04			ND	Dry	ND	Dry

TABLE 2
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-8	10/11/96	10-20	103.85	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	12/20/04			DRY	Dry	DRY	Dry
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
MW-10	10/11/96	8-18	93.53	ND	Dry	ND	Dry
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY	Dry	DRY	Dry
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			ND	Dry	ND	Dry
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY	Dry	DRY	Dry
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			ND	Dry	ND	Dry
	12/20/04			DRY	Dry	DRY	Dry
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	0.41	77.87
	9/19/01			ND	Dry	ND	Dry
	12/20/04			ND	Dry	ND	Dry

TABLE 2
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	0.30	79.96
	12/20/04			26.56	26.76	0.20	71.73
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	0.63	65.35
	5/28/03			18.11	18.23	0.12	82.63
	12/20/04			30.26	30.69	0.43	70.39
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
MW-16	10/11/96	13-23.5	100.57	ND	Dry	ND	Dry
	9/19/01			ND	22.47	ND	78.10
	9/18/02			ND	Dry	ND	Dry
	5/28/03			ND	17.84	ND	82.73
	12/20/04			ND	Dry	ND	Dry
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL PAVED OVER					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL GROWN OVER					
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY	Dry	DRY	Dry
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93

TABLE 2
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			ND	Dry	ND	NA
	12/20/04			29.39	30.21	0.82	69.33
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
MW-21	8/13/96	TD-40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04	WELL DESTROYED					
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			ND	DRY	ND	DRY
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62

TABLE 2
GROUND WATER ELEVATION DATA

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft. bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft. btoc)	DEPTH TO GROUND WATER (ft. btoc)	PRODUCT THICKNESS	GROUND WATER ELEVATION
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78

Notes:

1) Ground Water elevations corrected for free product using the following formula:
*GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.*

2) ND - not detected

3) NA - data not available.

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTHALENE (ug/l)	PAHs (ug/l)
MW-1	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-2	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-4R	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-5	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	BDL	**249**	**64**
	9/18/02	**15,200**	684	291	2,278	**13,500**	**1.5**	**356**	NA
	5/28/03	**11,400**	213	136	1,641	**13,200**	**1.8**	**385**	NA
	12/21/04	**13,000**	300	320	1900	**15,000**	**1.2**	**400**	NA
MW-7B	10/11/96	**35**	94	43	174	BDL	BDL	18	**16**
	8/20/98	**31**	15	41	141	BDI	BDL	**41**	**10**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-8	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	BDL	BDL
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	**0.11**	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTHALENE (ug/l)	PAHs (ug/l)
MW-10	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	BDL	BDL
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	**0.18**	11.1	NA
	5/28/03	**178**	BDL	BDL	1.7	BDL	**0.14**	19.2	NA
	12/20/04	**230**	BDL	BDL	BDL	BDL	**1.1**	21	NA
MW-13	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**3.6**	**456**	NA
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	BDL	**695**
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**42.4**	**403**	**153**
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**16.9**	**1,040**	**1,113**
	9/18/02	FP	FP	FP	FP	FP	FP	FP	FP
	5/28/03	FP	FP	FP	FP	FP	FP	FP	FP
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	3.3	BDL	BDL	BDL	6.9	BDL	2.1	NA
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	BDL	NA
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	BDL	NA

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTHALENE (ug/l)	PAHs (ug/l)
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	BDL	NA
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	BDL	NA
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	BDL	BDL
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	NS	NS	NS	NS	NS	NS	NS	NS
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	BDL	NA
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	BDL	**660**
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**678**	**5,150**	**519**
	9/19/01	NS	NS	NS	NS	NS	NS	NS	NS
	12/20/04	FP	FP	FP	FP	FP	FP	FP	FP
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**46**	**446**	NA
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**E-67**	**393**	NA
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**54**	**660**	NA
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	WELL DESTROYED							

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Related Compounds

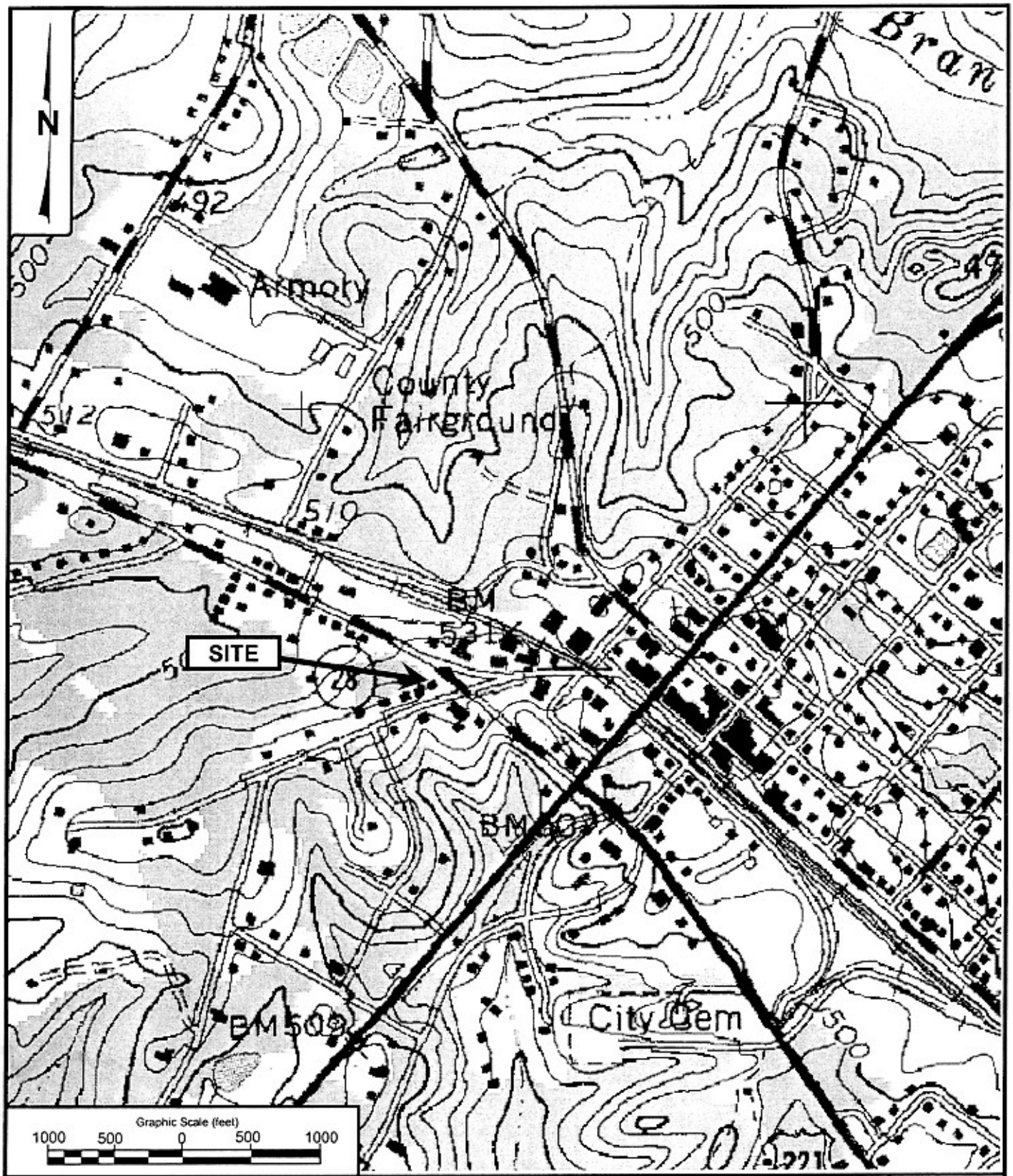
FORMER SC-576
McCormick, SC
SCDHEC SITE NO. 06443
GAGE Project No. 73048013

WELL NUMBER	SAMPLE DATE	BENZENE (ug/l)	TOLUENE (ug/l)	ETHYL-BENZENE (ug/l)	XYLENES (ug/l)	MTBE (ug/l)	EDB (ug/l)	NAPHTH-ALENE (ug/l)	PAHs (ug/l)
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	BDL	**48**
	8/20/98	2.6	2	12	86	BDL	0.18	12.9	**16.7**
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	BDL	NA
	9/18/02	BDL	BDL	BDL	6.4	BDL	BDL	1.6	NA
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
	12/20/04	BDL	BDL	BDL	BDL	BDL	0.021	BDL	NA
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	BDL	**480**	**420**
	8/20/98	**3,081**	19	6	3,046	**788**	**2.48**	**393**	**144**
	9/19/01	2.64	5.37	2.1	42.2	BDL	BDL	1.09	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**740**	4.58	BDL	269.8	**562**	**0.34**	**112**	NA
	12/20/04	**1,200**	BDL	BDL	210	**370**	**0.16**	**180**	NA
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	BDL	**655**
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**45**	**728**	**367.4**
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	BDL	**2,070**	NS
	9/18/02	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**E-15**	**672**	NA
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**6.1**	**940**	NA
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**42**	**440**	NA
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*0.05*	*25*	*10*

Notes:

1 *Results shown in boldface type indicate concentrations which exceed the RBSL for that compound*
2 *BDL - below laboratory method detection limit*
3 *ug/l - micrograms per liter or parts per billion*
4 *NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis*
5 *NA- data not available*
6 *MTBE - Methyl-tert-butyl-ether*
7 *EDB - 1,2- Dibromomethane*
8 *PAHs - Total Polunuclear Aromatic Hydrocarbons as 1-Methylnaphthalene, 2-methylnaphthalene, and the 5 South Carolina spe parameters, Benzo(a)anthracene, Benzo(b)fluoroanthene, Benzo(k)fluroanthene, Chrysene, and Dibenzo(a,h)anthracene.*
9 *RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document*
10 *FP - Free Product detected in well, greater than 0.1 foot thickness.*

FIGURES



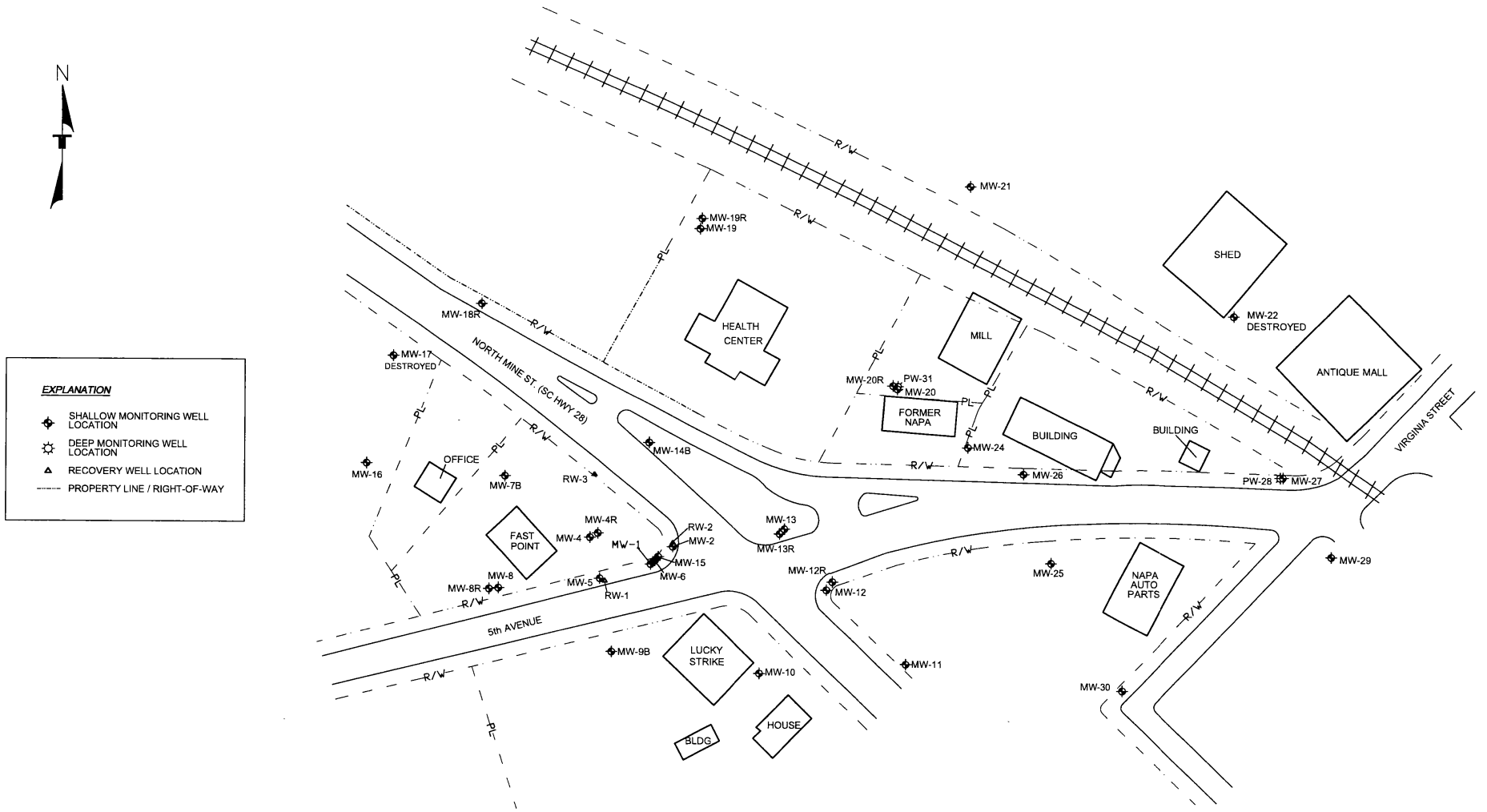
GAGE GROUP
A Terracon Company
521 Clemson Road, Columbia, South Carolina, 29229

SITE LOCATION MAP

FORMER SC-576
MCCORMICK, SOUTH CAROLINA

PROJECT NO. 7304-8013	FIGURE NO. 1
DRAWN BY RPC	CHECKED BY GP
SCALE 1 inch=1000 feet	DATE 2/16/05

SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC MAP, ADAPTED FROM DELORME 3-D TOPO QUADS, 1999.



THIS DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

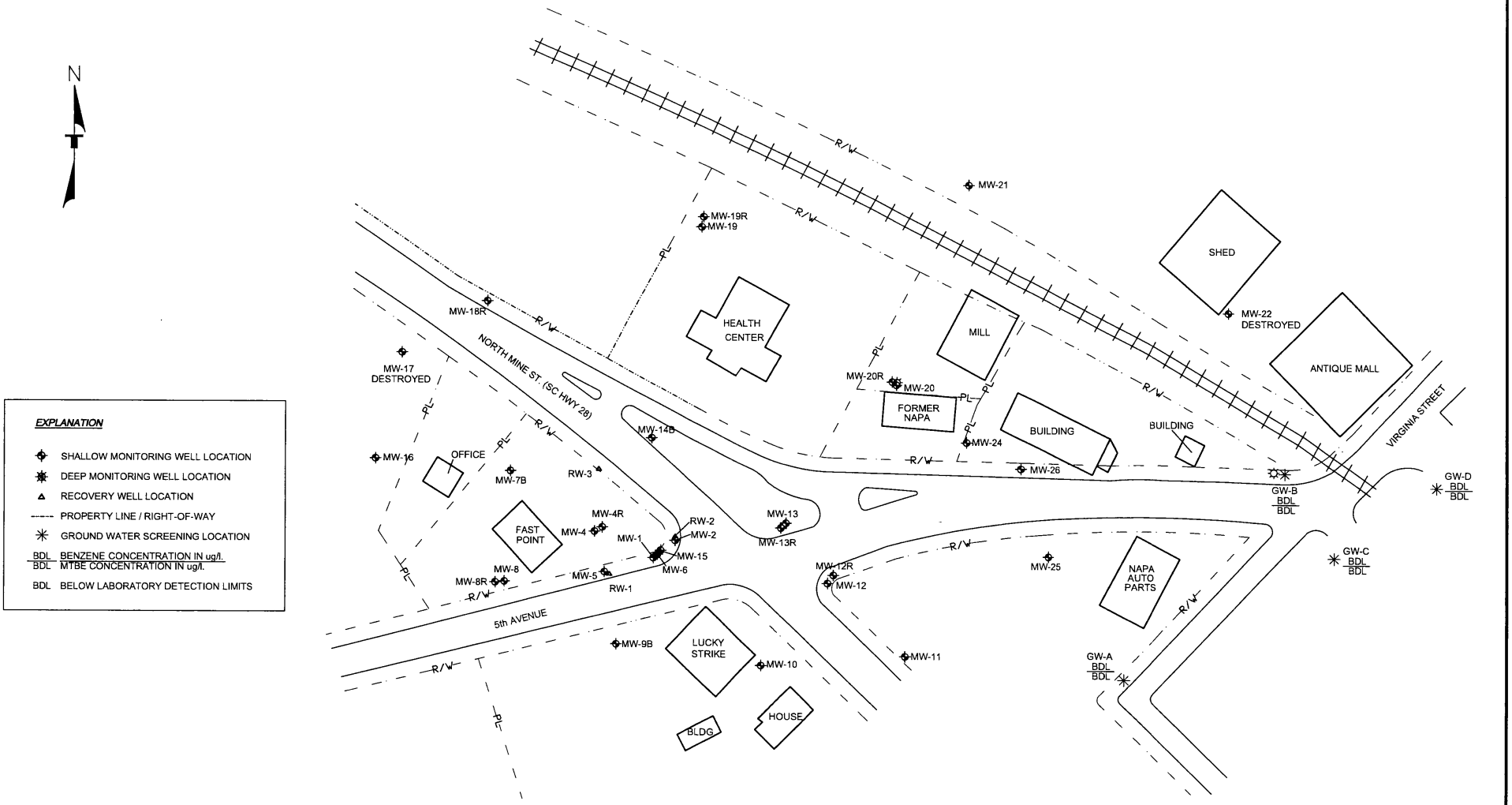
SITE PLAN

FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

PROJECT NO.	FIGURE
73048013	2
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc.

\73048013 Former SC-576.dwg



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GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

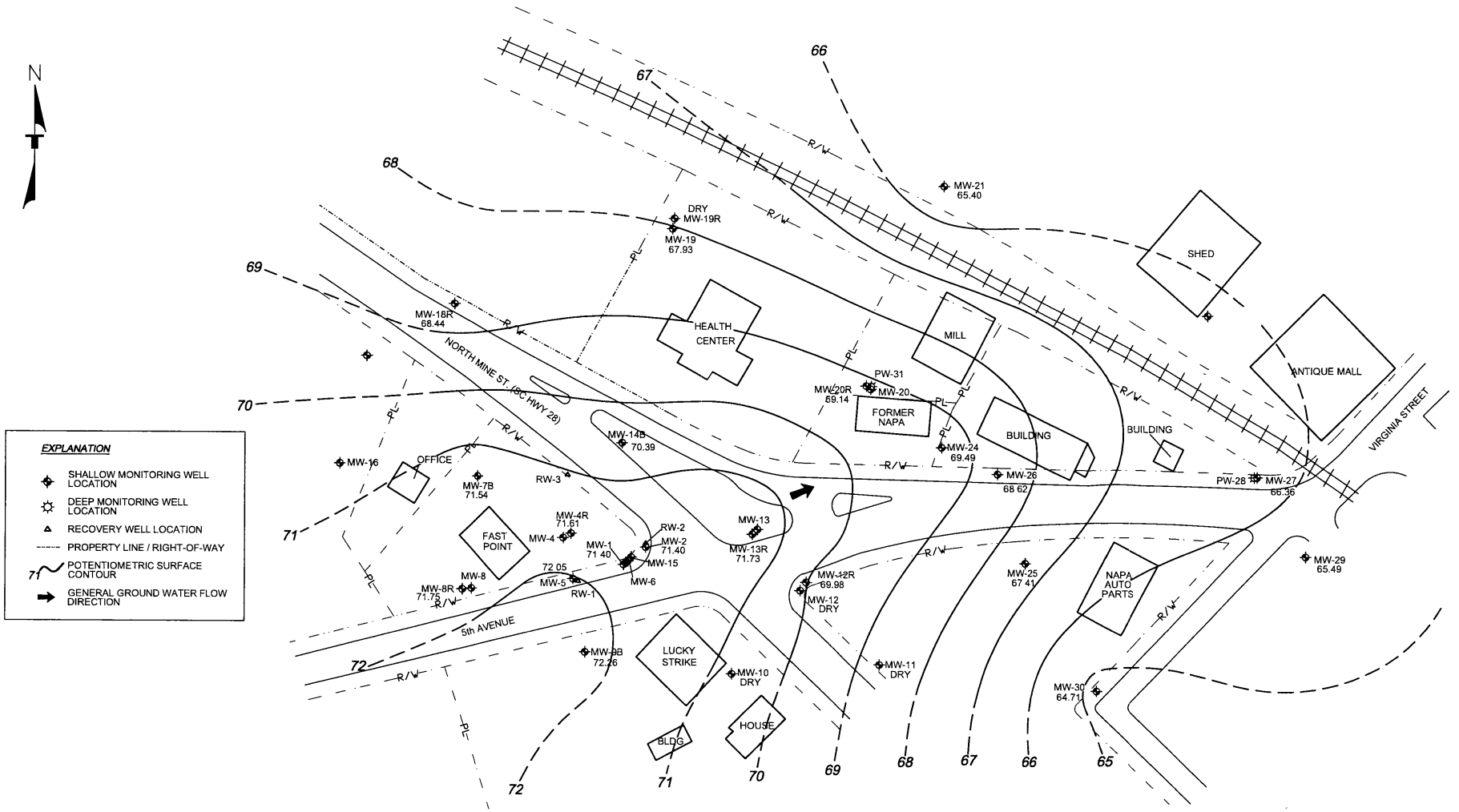
FIELD SCREENING LOCATION MAP

FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

PROJECT NO.	FIGURE
73048013	3
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc.

\73048013 Former SC-576.dwg



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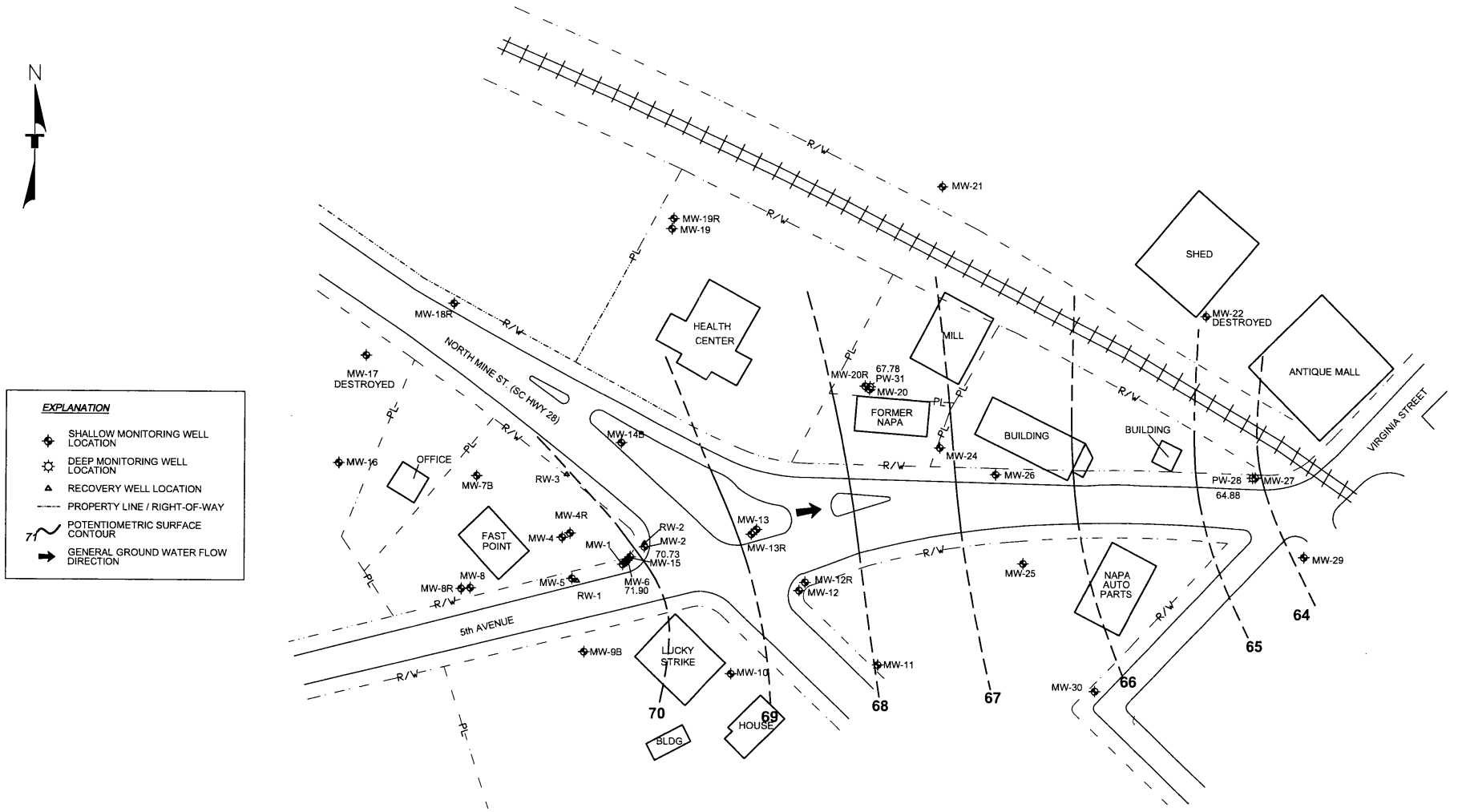
GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

POTENTIOMETRIC MAP OF THE UPPER PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

PROJECT NO	FIGURE
73048013	4
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc

\73048013 Former SC-576.dwg



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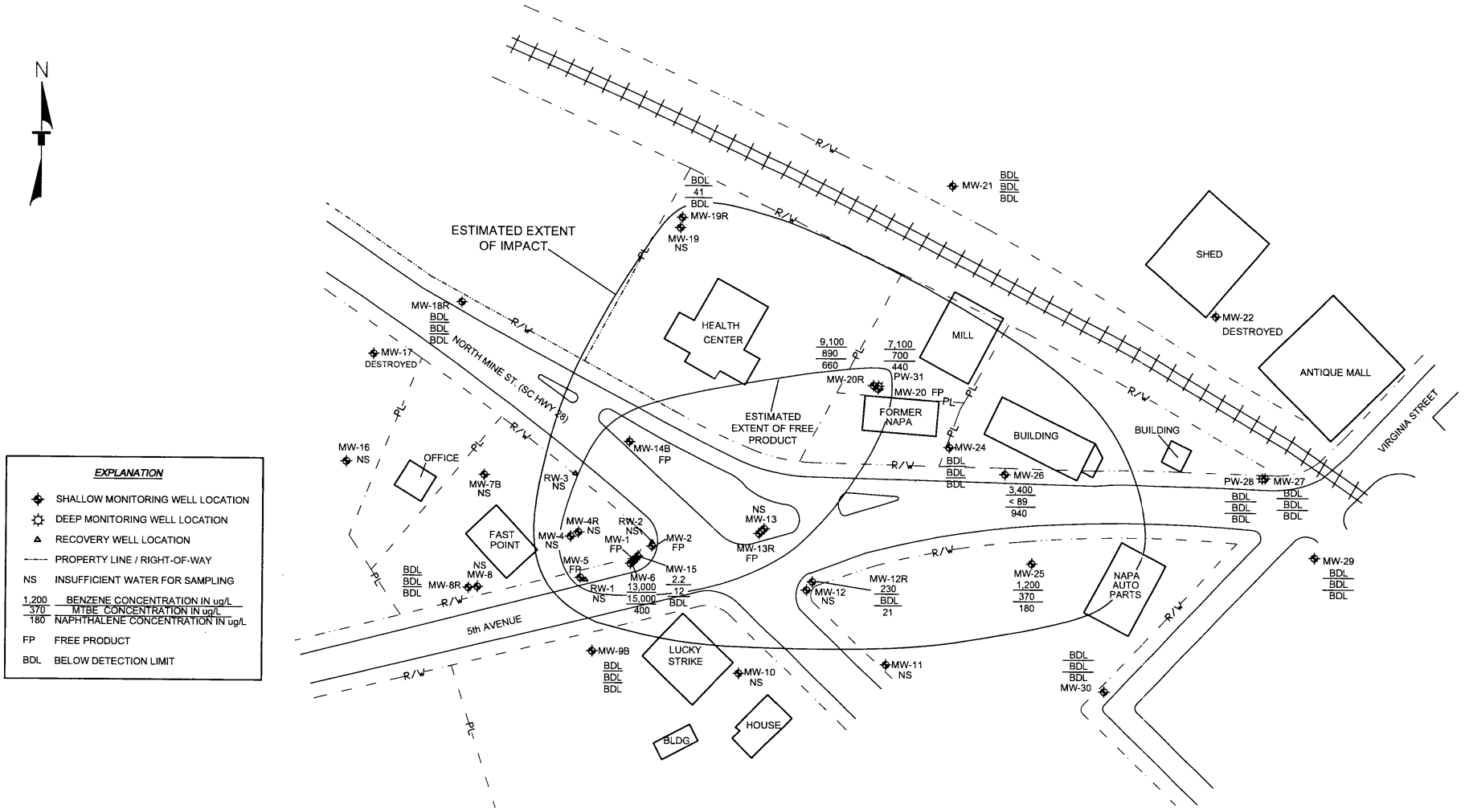
GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

POTENTIOMETRIC MAP OF THE INTERMEDIATE / DEEP PORTION OF THE SHALLOW AQUIFER
FORMER SC-576
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

PROJECT NO.	FIGURE
73048013	5
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc.

\73048013 Former SC-576 dwg



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GAGE GROUP
A TERRACON COMPANY
Geotechnical and GeoEnvironmental Engineers
521 Clemson Road, Columbia, South Carolina 29229

BENZENE / MTBE / NAPHTHALENE CONCENTRATION MAP

FORMER SC-576
MCCORMICK, SCUTH CAROLINA
UST SITE NO. 06443

PROJECT NO.	FIGURE
73048013	6
DRAWN BY	CHECKED BY
MRM	NEP
SCALE	DATE
1" = 100'	02/15/05

Source: Adapted from Survey Platt Provided by Belter and Associates, Inc

173048013 Former SC-576.dwg

APPENDIX A

Geologist Logs and Water Well Records

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576		Project Number: 73048013	Boring/Well: **MW-27**
Client: Crown Petroleum, Inc.			***Well Construction Data***
Date Started: 12/13/04	Date Completed: 12/13/04	Screen: Slotted (0.010") PVC	From: 25 - To: 40
Logged By: M. Miles	Coordinates:	Pack: #2 Filter Sand	From: 23 - To: 45
Drilling Co.: SAEDACCO	Driller: Steve	Seal: Bentonite Chips	From: 21 - To: 23
Method: HSA	Equipment: GusPech	Grout: Neat Cement	From: 0.5 - To: 21
Boring Depth (ft.): 45.0	TOC Elevation: 93.34	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 8.5"	GW Level: ▼ 27.00 Time/Date: 12/14/04	Outer Casing/Stick Up: Flush Manhole Cover	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
2						SOD, Topsoil		2
4	X	A	4 8 8 8			SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		4
6								6
8								8
10	X	B	5 5 8 13					10
12								12
14	X	C	4 4 4 7					14
16						SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		16
18								18
20	X	D	5 5 7 15					20
22								22
24	X	E	7 9 8 7					24
26							▼	26
28								28
	X	F	8 10					

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576	Project Number: 73048013	Boring/Well: MW-27
Client: Crown Petroleum, Inc.	Well Construction Data	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
32		F	12 14			SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		32
34		G	4 7 9 10					34
36								36
38						SILT, pale yellowish brown, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		38
40		H	4 8 12 15					40
42								42
44								44
						Boring Terminated at 45 Feet		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

MW-27

1. WELL OWNER INFORMATION:
Name: CROWN SC #576 (last) (first)
Address: 201 NORTH MINE ST HIGHWAY 28 @ FFTH AVE
City: MCCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS II 1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
" "	10	20
" "	20	40
PWR	40	45
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: 06443

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☐ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 40' ft.
Date Started: 12-13-04
Date Completed: 12-13-04

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 25 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 25' ft. and 40' ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 38.4 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 23' ft. to 40' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ ~~Neat~~ Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to 21' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: CERT. NO.: 1097
Address: (Print) STEVE POLONIEWICZ Level: (A) B C D (circle one)
4237 BECCE MEADE CIRCLE BELMONT NC
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 1-7-05
Well Driller

If D Level Driller, provide supervising driller's name:

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576		Project Number: 73048013	Boring/Well: **PW-28**
Client: Crown Petroleum, Inc.			***Well Construction Data***
Date Started: 12/14/04	Date Completed: 12/15/04	Screen: Slotted (0.010") PVC	From: 50 - To: 55
Logged By: M. Miles	Coordinates:	Pack: #2 Filter Sand	From: 49 - To: 55
Drilling Co.: SAEDACCO	Driller: Steve	Seal: Bentonite Chips	From: 47.5 - To: 49
Method: HSA	Equipment: GusPech	Grout: Neat Cement	From: 0.5 - To: 47.5
Boring Depth (ft.): 55.0	TOC Elevation: 93.19	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 12"/6"	GW Level: 28.31 Time/Date: 12/20/04	Outer Casing/Stick Up: 6" Threaded Sch-80 PVC	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
0						SOD, Topsoil		
2						SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		2
4	X	A	4 8 8 8					4
6								6
8								8
10	X	B	5 5 8 13					10
12								12
14	X	C	4 4 4 7					14
16						SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		16
18								18
20	X	D	5 5 7 15					20
22								22
24	X	E	7 9 8 7					24
26								26
28								28
	X	F	8 10					

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576	Project Number: 73048013	Boring/Well: PW-28
Client: Crown Petroleum, Inc.		Well Construction Data

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
32		F	12 14			SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		32
34		G	4 7 9 10					34
36								36
38						SILT, pale yellowish brown, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		38
40		H	4 8 12 15					40
42								42
44		I						44
46								46
48						Bottom of 6" casing at 47.5 feet bellow ground surface		48
50								50
52								52
54								54
						Boring Terminated at 55 Feet		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

~~MW-28~~ PW-28

1. WELL OWNER INFORMATION:
Name: CROWN SC #576 (last) (first)
Address: 201 NORTH MINE ST HIGHWAY 28 @ FFTH AVE
City: MCCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS II 1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
" "	10	20
" "	20	40
PWR	40	45
BEDROCK	45'	55
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: 06443

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55' ft. Date Started: 12-14-04 Date Completed: 12-15-04

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 50' ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 5'
Set Between: 50' ft. and 55' ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 37.8 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 48' ft. to 55' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ ~~Neat~~ Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to 46' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: CERT. NO.: 1097
Address: (Print) STEVE POLONIEWICZ Level: (A) B C D (circle one)
4237 BECCE MEADE CIRCLE BELMONT NC
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 1-7-05
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

GAGE GROUP
Geotechnical and GeoEnvironmental Engineers

7499 PARKLANE ROAD
COLUMBIA, SOUTH CAROLINA 29223
Telephone: 803-741-9000
Fax: 803-741-9900

Project: SC-576		Project Number: 73048013	Boring/Well: **MW-29**
Client: Crown Petroleum, Inc.		Well Construction Data	
Date Started: 12/14/04	Date Completed: 12/14/04	Screen: Slotted (0.010") PVC	From: 22.5 - To: 38
Logged By: M. Miles	Coordinates:	Pack: #2 Filter Sand	From: 20.5 - To: 38
Drilling Co.: SAEDACCO	Driller: Steve	Seal: Bentonite Chips	From: 18.5 - To: 20.5
Method: HSA	Equipment: GusPech	Grout: Neat Cement	From: 0.5 - To: 18.5
Boring Depth: 38.0	TOC Elevation: 92.1	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 8.5"	GW Level: 26.6 / Time/Date: 12/20/04	Outer Casing/Stick Up: Flush Manhole Cover	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
0						SOD, surface soil Sandy SILT, dark yellowish brown, moist, brick, asphalt [Fill]		0
5		A				SILT, pale yellowish brown, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		5
10		B	3 7 8 10					10
15						SILT, pale yellowish brown, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		15
20		C	5 9 10 5					20
25		D	3 6					25

Remarks:

LOG OF BORING WELL 73048013.GPJ GAGE_GRP GDT 2/16/05

GAGE GROUP
Geotechnical and GeoEnvironmental Engineers

7499 PARKLANE ROAD
COLUMBIA, SOUTH CAROLINA 29223
Telephone: 803-741-9000
Fax: 803-741-9900

Project: SC-576	Project Number: 73048013	Boring/Well: MW-29
Client: Crown Petroleum, Inc.		

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
		D	8 12			SILT, pale yellowish brown, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		
35		E	5 6 10 10					35
						Boring Terminated at 38.0 Feet		

Remarks:

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/16/05

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

~~pw-29~~ MW-29

1. WELL OWNER INFORMATION:
Name: CROWN SC #576 (last) (first)
Address: 201 NORTH MINE ST HIGHWAY 28 @ FFTH AVE
City: MCCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS II 1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
" "	10	20
" "	20	40
PWR	40	45
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: 06443

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 38' ft. Date Started: 12-14-04 Date Completed: 12-14-04

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 23 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 23' ft. and 38' ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 33.6 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 21' ft. to 38' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ ~~Neat~~ Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to _____ ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: CERT. NO.: 1097
Address: (Print) STEVE POLONIEWICZ Level: (A) B C D (circle one)
4237 BECCE MEADE CIRCLE BELMONT NC
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 1-7-05
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004) COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

GAGE GROUP
A Terracon Company

GEOLOGIST LOG

Project: SC-576		Project Number: 73048013	Boring/Well: **MW-30**
Client: Crown Petroleum, Inc.		***Well Construction Data***	
Date Started: 12/14/04	Date Completed: 12/14/04	Screen: Slotted (0.010") PVC	From: 11 - To: 26
Logged By: M. Miles	Coordinates:	Pack: #2 Filter Sand	From: 9 - To: 26
Drilling Co.: SAEDACCO	Driller: Steve	Seal: Bentonite Chips	From: 7 - To: 9
Method: HSA	Equipment: GusPech	Grout: Neat Cement	From: 0.5 - To: 7
Boring Depth (ft.): 26.0	TOC Elevation: 84.36	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 8.5"	GW Level: 19.50 Time/Date: 12/15/04	Outer Casing/Stick Up: Flush Manhole Cover	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
2						SOD		2
4		A				SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		4
6								6
8								8
10		B	2 3 5 6					10
12								12
14								14
16						SILT, dark orangish brown to pale yellowish brown, mottled, moist, stiff, no petroleum odor, black veins, friable, [Saprolite]		16
18								18
20		C	4 7 10 10					20
22								22
24		D	6 8 9 11					24
26						Boring Terminated at 26 Feet		26

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

DHEC
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water

MW pw-30

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: CROWN SC #576 (last) (first)
Address: 201 NORTH MINE ST HIGHWAY 28 @ FFTH AVE
City: MCCORMICK State: SC Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: MCCORMICK
Name:
Street Address: SAME AS II 1
City: Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
RED SILTY CLAY	0	10
" "	10	20
" "	20	40
PWR	40	45
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: 06443

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 26' ft. Date Started: 12-15-04 Date Completed: 12-15-04

10. CASING: ☑ Threaded ☐ Welded
Diam.: 2"
Type: ☑ PVC ☐ Galvanized ☐ Steel ☐ Other
0.6 in. to 11 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 2"
Slot/Gauge: .010 Length: 15'
Set Between: 11' ft. and 26' ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 21.2 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 9' ft. to 26' ft.
Effective size 20/30 Uniformity Coefficient yes

16. WELL GROUTED? ☑ Yes ☐ No
☐ ~~Neat~~ Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 1' ft. to 7' ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: CERT. NO.: 1097
Address: (Print) STEVE POLONIEWICZ Level: (A) B C D (circle one)
4237 BECCE MEADE CIRCLE BELMONT NC
Telephone No.: 704 825-5091 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: [signature] Date: 1-7-05
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576		Project Number: 73048013	Boring/Well: **PW-31**
Client: Crown Petroleum, Inc.		***Well Construction Data***	
Date Started: 12/14/04	Date Completed: 12/15/04	Screen: Slotted (0.010") PVC	From: 50 - To: 55
Logged By: M. Miles	Coordinates:	Pack: #2 Filter Sand	From: 48 - To: 55
Drilling Co.: SAEDACCO	Driller: Rich	Seal: Bentonite Chips	From: 46 - To: 48
Method: HSA/MR	Equipment: Mobile	Grout: Neat Cement	From: 0.5 - To: 46
Boring Depth (ft.): 55.0	TOC Elevation: 98.13	Inner Casing: 2" Threaded Sch-40 PVC	
Boring Diameter (in): 12"/6"	GW Level: ▼ 29.35 Time/Date: 12/20/04	Outer Casing/Stick Up: 6" Threaded Sch-80 PVC	

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
0						SOD		0
2						SILT, dark orangish brown, moist, petroleum odor at ~ 25 to 30 feet [Saprolite]		2
4								4
6								6
8								8
10								10
12								12
14								14
16						SILT, dark orangish brown, moist, petroleum odor at ~ 25 to 30 feet [Saprolite]		16
18								18
20								20
22								22
24								24
26								26
28								28

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GEOLOGIST LOG

GAGE GROUP
A Terracon Company

Project: SC-576	Project Number: 73048013	Boring/Well: PW-31
Client: Crown Petroleum, Inc.		Well Construction Data

Depth	Sample	Sample Number	Blows/ 6 inches	PID (ppm)	Lithology	Description	Well Detail	Depth
32						SILT, dark orangish brown, moist, petroleum odor at ~ 25 to 30 feet [Saprolite]		32
34								34
36								36
38								38
40								40
42								42
44						SILT, pale reddish brown to very pale gray, laminated - parent rock structure, stiff, friable [Partially Weathered Rock], saturated		44
46						Very hard drilling at 44 feet		46
48						Partially Weathered Rock		48
50								50
52								52
54								54
						Boring Terminated at 55 Feet		

LOG OF BORING WELL 73048013.GPJ GAGE_GRP.GDT 2/14/05

GAGE Group, Inc.
521 Clemson Road, Columbia, South Carolina 29229
Phone: 803-741-9000, Fax: 803-741-9900

PW-31

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

D H E C — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: Crown S.C # 576
Address: 201 North (last) Mine St (first) Hwy 28
City: McCormick State: S.C Zip:
Telephone: Work: Home:

2. LOCATION OF WELL: COUNTY: McCormick
Name: Crown S.C # 576
Street Address: 201 North Mine St Hwy 28
City: McCormick S.C Zip:
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: Crown S.C. # 576 **PUBLIC SYSTEM NUMBER:**

4. ABANDONMENT: ☐ Yes ☒ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
0 – #5 Tan		
silty SAND		
#5-55 white		
SANDY Clay		
water at 38.2'		
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS:		

6. TYPE: ☒ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. PERMIT NUMBER: 06443

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☒ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 55 ft. Date Started: 12-15-04 Date Completed: 12-15-04

10. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
0 in. to 50 ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: PVC Diam.: 2"
Slot/Gauge: .010 Length: 5'
Set Between: 50 ft. and 55 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL _____ ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☒ Yes ☐ No
Installed from 48 ft. to 55 ft.
Effective size #2 Uniformity Coefficient SAND

16. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☐ Bentonite/Cement ☐ Other _____
Depth: From 0 ft. to 46 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ ☐ Not installed
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Richy L Lemire CERT. NO.: 1423
Address: (Print) SAEDACCO
9088 North Field Dr.
Fortmill S.C.
Level: A (B) C D (circle one)
Telephone No.: 1-800-849-0353 Fax No.:

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: Richy L Lemire (Well Driller) Date: 12-15-04

If D Level Driller, provide supervising driller's name:

DHEC 1903 (03/2004)

COPY 1 MAIL TO SCDHEC, COPY 2 TO WELL OWNER, COPY 3 TO WELL DRILLER

APPENDIX B

Ground Water Sampling Logs

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-4R
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1120

Total Well Depth:	30.25 ft. BTOC
Depth to water:	29.95 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: No purge
Dry

Field Analyses

Volume Purged (gal.)						
Time						
pH						
Specific Conductivity (umhos/cm)						
Water Temperature ©						
Turbidity						
Dissolved Oxygen (mg/L)						

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-6
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1240

Total Well Depth:	58 ft. BTOC
Depth to water:	28.55 ft. BTOC
Length of Water Column (LWC):	29.45 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	5.0 gal.
3 Casing Volumes:	15 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	5	10	15			
Time	1212	1224				
pH	6.92	6.59	6.32			
Specific Conductivity (umhos/cm)	303.9	292.0	302.7			
Water Temperature ©	20.8	14.6	20.2			
Turbidity	mod	mod	mod			
Dissolved Oxygen (mg/L)	3.11	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-8R
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Low 40's
Air Temperature:	
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1000 1050

Total Well Depth:	40 ft. BTOC
Depth to water:	32.14 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge

Field Analyses

Volume Purged (gal.)	—					
Time	1055					
pH	5.36					
Specific Conductivity (umhos/cm)	34.4					
Water Temperature ©	15.3					
Turbidity	Low					
Dissolved Oxygen (mg/L)	2.08					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-9B
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1110

Total Well Depth:	30 ft. BTOC
Depth to water:	26.73 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge

Field Analyses

Volume Purged (gal.)	—					
Time	1105					
pH	5.57					
Specific Conductivity (umhos/cm)	123.6					
Water Temperature ©	16.2					
Turbidity	Low					
Dissolved Oxygen (mg/L)	1.75					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-12R
Date:	12/20/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Low 40's
Air Temperature:	
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1625

Total Well Depth:	45 ft. BTOC
Depth to water:	25.38 ft. BTOC
Length of Water Column (LWC):	19.62 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	3.35 gal.
3 Casing Volumes:	10.0 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	3.5	7	10.5			
Time	1615	1620	1625			
pH	5.95	5.45	5.46			
Specific Conductivity (umhos/cm)	109.9	111.0	107.6			
Water Temperature ©	18.86	20.4	19.4			
Turbidity	high	high	high			
Dissolved Oxygen (mg/L)	2.47	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-13 R
Date:	12-2004
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	

Total Well Depth:	25 ft. BTOC
Depth to water:	24.83 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: SAWT
Product No sample

Field Analyses

Volume Purged (gal.)	—					
Time						
pH						
Specific Conductivity (umhos/cm)						
Water Temperature ©						
Turbidity						
Dissolved Oxygen (mg/L)						

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW.15
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1240

Total Well Depth:	130	ft. BTOC
Depth to water:	29.35	ft. BTOC
Length of Water Column (LWC):	100.65	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	17.11	gal.
3 Casing Volumes:		gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)						
Time						
pH	6.73	6.27	6.37			
Specific Conductivity (umhos/cm)	141.5	140.2	144.2			
Water Temperature ©	18.8	18.2	19.1			
Turbidity	Low	Low	Low			
Dissolved Oxygen (mg/L)	2.56	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-16
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	~~1130~~ No sample

Total Well Depth:	23.50 ft. BTOC
Depth to water:	23.01 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge Dry

Field Analyses

Volume Purged (gal.)	—					
Time	1125					
pH						
Specific Conductivity (umhos/cm)						
Water Temperature ©						
Turbidity						
Dissolved Oxygen (mg/L)						

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-18R
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1145

Total Well Depth:	33 ft. BTOC
Depth to water:	30.31 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge

Field Analyses

Volume Purged (gal.)	—					
Time	1140					
pH	5.41					
Specific Conductivity (umhos/cm)	119.3					
Water Temperature ©	17.8					
Turbidity	Low					
Dissolved Oxygen (mg/L)	5.0					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-19R
Date:	12-21-04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	low 30's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	910

Total Well Depth:	45 ft. BTOC
Depth to water:	26.14 ft. BTOC
Length of Water Column (LWC):	18.86 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	3.25 gal.
3 Casing Volumes:	9.61 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	3.25	6.5	9.75			
Time	0850	0900	0910			
pH	5.36	5.02	5.06			
Specific Conductivity (umhos/cm)	161.4	143.4	139.2			
Water Temperature ©	16.2	15.6	13.6			
Turbidity	high	high	high			
Dissolved Oxygen (mg/L)			4.25			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-20R
Date:	12/21/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	high 30's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1000

Total Well Depth:	~~21~~ 49.5 ft. BTOC
Depth to water:	29.24 ft. BTOC
Length of Water Column (LWC):	20.26 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	3.44 gal.
3 Casing Volumes:	10.33 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	3.5	7	10.5			
Time	945	950	955			
pH	5.12	5.26	5.42			
Specific Conductivity (umhos/cm)	116.5	136.5	138.6			
Water Temperature ©	17.3	16.9	15.7			
Turbidity	mod	mod	mod			
Dissolved Oxygen (mg/L)	3.09	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-21
Date:	12/20/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1435

Total Well Depth:	40 ft. BTOC
Depth to water:	32.14 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	SAWT

Field Analyses

Volume Purged (gal.)	/					
Time	1435					
pH	5.44					
Specific Conductivity (umhos/cm)	113.6					
Water Temperature ©	12.5					
Turbidity	low					
Dissolved Oxygen (mg/L)	3.35					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-24
Date:	12-20
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1500

Total Well Depth:	40 ft. BTOC
Depth to water:	27.68 ft. BTOC
Length of Water Column (LWC):	12.32 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	Dry @ 3.15 gal

Field Analyses

Volume Purged (gal.)	2 ~~3~~	4	6			
Time	1500					
pH	6.13	6.04				
Specific Conductivity (umhos/cm)	152.5	117.2				
Water Temperature ©	18.5	17.7				
Turbidity	high	mod				
Dissolved Oxygen (mg/L)		2.72				

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-25
Date:	12/20/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1540

Total Well Depth:	30 ft. BTOC
Depth to water:	27.56 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge

Field Analyses

Volume Purged (gal.)	—					
Time						
pH	6.28					
Specific Conductivity (umhos/cm)	323.4					
Water Temperature ©	16.4					
Turbidity	Low					
Dissolved Oxygen (mg/L)	2.17					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-26
Date:	12/20/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	Low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1410

Total Well Depth:	30 ft. BTOC
Depth to water:	27.74 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.
Remarks:	No purge

Field Analyses

Volume Purged (gal.)	—					
Time	1405					
pH	6.24					
Specific Conductivity (umhos/cm)	90.1					
Water Temperature ©	15.8					
Turbidity	Low					
Dissolved Oxygen (mg/L)	1.63					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-27
Date:	12-20-04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1335

Total Well Depth:	40	ft. BTOC
Depth to water:	26.98	ft. BTOC
Length of Water Column (LWC):	13.02	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	2.21	gal.
3 Casing Volumes:	6.64	gal.

Remarks: _____

Field Analyses

Volume Purged (gal.)	2.25	4.5	6.75			
Time	1330	1335	1337			
pH	5.23	5.06	5.03			
Specific Conductivity (umhos/cm)	120.8	134.1	141.1			
Water Temperature ©	17.6	17.2	17.9			
Turbidity	mod	mod	mod			
Dissolved Oxygen (mg/L)	6.98	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	PW-28
Date:	12/20/04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	
Air Temperature:	
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1400

Total Well Depth:	55 ft. BTOC
Depth to water:	28.31 ft. BTOC
Length of Water Column (LWC):	26.69 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	4.54 gal.
3 Casing Volumes:	13.61 gal.

Remarks:

Field Analyses

Volume Purged (gal.)	4.5	9.25	13.75			
Time	1345	1355	1355			
pH	6.31	6.59	6.41			
Specific Conductivity (umhos/cm)	280.3	277.6	251.2			
Water Temperature ©	19.3	18.0	17.2			
Turbidity	Low	high	high			
Dissolved Oxygen (mg/L)	6.99	—	—			

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-29
Date:	12-20-04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	
Air Temperature:	
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1255

Total Well Depth:	37.5 ft. BTOC
Depth to water:	26.62 ft. BTOC
Length of Water Column (LWC):	____ ft.
Casing Diameter:	____ in.
1 Casing Volume = LWC x ____ =	____ gal.
3 Casing Volumes:	____ gal.

Remarks: Screened Across Water Table (SAWT)

Field Analyses

Volume Purged (gal.)	✓					
Time	1255					
pH	6.15					
Specific Conductivity (umhos/cm)	118.9					
Water Temperature ©	17.6					
Turbidity	low					
Dissolved Oxygen (mg/L)	7.15					

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Page ____ of ____

Well ID:	MW-30
Date:	12-20-04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	~~1255~~ 1310

Total Well Depth:	26	ft. BTOC
Depth to water:	19.65	ft. BTOC
Length of Water Column (LWC):	6.35	ft.
Casing Diameter:	2	in.
1 Casing Volume = LWC x .17 =	1	gal.
3 Casing Volumes:		gal.

Remarks: SAWT

Field Analyses

	1	2	3			
Volume Purged (gal.)						
Time	1250	1256	1310			
pH	5.67	5.57	5.61			
Specific Conductivity (umhos/cm)	91.5	88.1	99.5			
Water Temperature ©	15.4	17.3	17.1			
Turbidity	mod	high	high			
Dissolved Oxygen (mg/L)						

GAGE GROUP
A Terracon Company

Groundwater Sampling Log

Well ID:	MW-31
Date:	12-21-04
Site Name:	SC-576
Project No.:	73048013
Field Personnel:	RWN / RAM
Weather Conditions:	Sunny
Air Temperature:	low 40's
Well Evacuation Method:	BAILER
Sample Collection Method:	BAILER
Sampled at (time):	1005

Total Well Depth:	55 ft. BTOC
Depth to water:	29.35 ft. BTOC
Length of Water Column (LWC):	25.65 ft.
Casing Diameter:	2 in.
1 Casing Volume = LWC x .17 =	4.36 gal.
3 Casing Volumes:	13.08 gal.
Remarks:	

Field Analyses

Volume Purged (gal.)	4.5	8.75	13.25	[redacted]		
Time	945	954	1005			
pH	6.62	6.01	5.46	[redacted]		
Specific Conductivity (umhos/cm)	322.6	242.2	161.1			
Water Temperature ©	15.4	16.5	16.3			
Turbidity	high	high	high			
Dissolved Oxygen (mg/L)			2.47			

APPENDIX C

Chemical Analytical Data

ACCESS
ANALYTICAL, INC.

Analytical Report

For: Mr. Gene Partin
Gage Group
521 Clemson Road
Columbia, SC 29229
CC:

Order Number: C410192
SDG Number:
Client Project ID: 73048013
Project: CROWN SC-576
Report Date: 10/18/2004
Sampled By: Client
Sample Received Date: 10/06/2004
Requisition Number:
Purchase Order:

Ashley Amick, Project Manager

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PHONE (803) 781-4243 • TOLL FREE (888) 315-4243 • FAX (803) 781-4303 • WWW.ACCESSANALYTICALINC.COM

Sample Summary

Order: C410192
Date Received: 10/06/2004

Client: Gage Group
Project: CROWN SC-576

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
GW-A	C410192*1	Liquid	10/05/2004 13:00
GW-B	C410192*2	Liquid	10/05/2004 13:30
GW-C	C410192*3	Liquid	10/05/2004 11:00
GW-D	C410192*4	Liquid	10/05/2004 14:00

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
10192-1	GW-A	Liquid	10/06/04	10/05/04 13:00	
10192-2	GW-B	Liquid	10/06/04	10/05/04 13:30	
10192-3	GW-C	Liquid	10/06/04	10/05/04 11:00	
10192-4	GW-D	Liquid	10/06/04	10/05/04 14:00	

Parameter	Units	Lab Sample IDs 10192-1	10192-2	10192-3	10192-4
Aromatic Volatile Organics (8260B)					
Benzene	ug/l	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	ug/l	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	ug/l	<5.0	<5.0	<5.0	<5.0
Toluene	ug/l	<5.0	<5.0	<5.0	<5.0
Xylenes, Total	ug/l	<10	<10	<10	<10
Naphthalene	ug/l	<5.0	<5.0	<5.0	<5.0
Surrogate - Dibromofluoromethane *	%	108 %	118 %	111 %	112 %
Surrogate - Toluene-d8 *	%	98 %	99 %	100 %	99 %
Surrogate - 4-Bromofluorobenzene *	%	90 %	91 %	91 %	91 %
Dilution Factor		1	1	1	1
Prep Date		10/12/04	10/12/04	10/12/04	10/12/04
Prep Time		15:51	16:27	17:03	17:39
Analysis Date		10/12/04	10/12/04	10/12/04	10/12/04
Analysis Time		15:51	16:27	17:03	17:39
Batch ID		LEW153A	LEW153A	LEW153A	LEW153A
Prep Method		5030B	5030B	5030B	5030B
Analyst		WD	WD	WD	WD
Quantitation Factor		1	1	1	1

Access Analytical - Chain of Custody Record

Laboratory ID: SR-1

Project Submission #: 73048013 RUSH # CH10192 PO #:

Company Name: GACE Group, Inc.
Address: 521 Clemson Rd
City: Columbia State: SC Zip: 29229
Project Name: Crown SC-576
Report To: Gene Partin
Sampled By (print): Matthew Miles

Sample Label	Date Collected	Time Collected	Matrix	# of Cont.	Preservative (see codes below)	REQUESTED ANALYSIS: BTEX	Naph	MTBE				
GW-A	10.5.04	1300	L	2		X	X	X				
GW-B	"	1330	L	2		X	X	X				
GW-C	"	1100	L	2		X	X	X				
GW-D	"	1400	L	2		X	X	X				

ACCESS ANALYTICAL, INC.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

NOTES / COMMENTS

Turnaround Time:
✓ Std. (5-7 Bus. days)
___ RUSH*
*Date Required:_____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
___ Yes
___ No

Project Location:
✓ SC
___ NC
___ Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
	10/5/04	1500	
	10/5/04	1637	FEDEX
FEDEX	10-6-04	0945	Raven Hedgecock

* Preservative Codes *(place corresponding # in block above analysis field)*: 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

Access Analytical, Inc.
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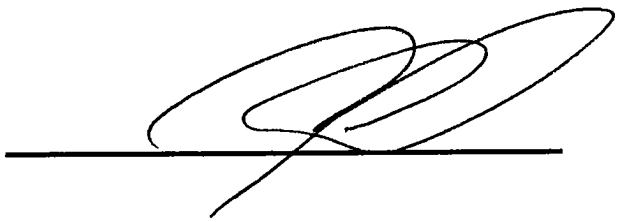
ACCESS
ANALYTICAL, INC.

Analytical Report

For: Mr. Gene Partin
Gage Group
521 Clemson Road
Columbia, SC 29229
CC:

Order Number: C412681
SDG Number:
Client Project ID: 73048020
Project: CROWN SC-576
Report Date: 01/04/2005
Sampled By: Client
Sample Received Date: 12/22/2004
Requisition Number:
Purchase Order:



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Sample Summary

Order: C412681
Date Received: 12/22/2004

Client: Gage Group
Project: CROWN SC-576

Client Sample ID	Lab Sample ID	Matrix	Date Sampled
MW-6	C412681*1	Liquid	12/21/2004 12:40
MW-8R	C412681*2	Liquid	12/21/2004 10:50
MW-9B	C412681*3	Liquid	12/21/2004 11:10
MW-12R	C412681*4	Liquid	12/20/2004 16:25
MW-15	C412681*5	Liquid	12/21/2004 12:40
MW-18R	C412681*6	Liquid	12/21/2004 11:45
MW-19R	C412681*7	Liquid	12/21/2004 09:10
MW-20R	C412681*8	Liquid	12/21/2004 01:00
MW-21	C412681*9	Liquid	12/20/2004 14:35
MW-24	C412681*10	Liquid	12/20/2004 15:00
MW-25	C412681*11	Liquid	12/20/2004 15:40
MW-26	C412681*12	Liquid	12/20/2004 14:10
MW-27	C412681*13	Liquid	12/20/2004 13:35
PW-28	C412681*14	Liquid	12/20/2004 14:00
MW-29	C412681*15	Liquid	12/20/2004 12:55
MW-30	C412681*16	Liquid	12/20/2004 13:10
PW-31	C412681*17	Liquid	12/21/2004 10:05

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
12681-1	MW-6	Liquid	12/22/04	12/21/04 12:40	
12681-2	MW-8R	Liquid	12/22/04	12/21/04 10:50	
12681-3	MW-9B	Liquid	12/22/04	12/21/04 11:10	
12681-4	MW-12R	Liquid	12/22/04	12/20/04 16:25	
12681-5	MW-15	Liquid	12/22/04	12/21/04 12:40	

Parameter	Units	Sample ID 12681-1 MW-6	12681-2 MW-8R	12681-3 MW-9B	12681-4 MW-12R	12681-5 MW-15
Microextractable Organics (8011)						
1,2-Dibromoethane (EDB)	ug/l	1.2	<0.020	<0.020	1.1	<0.020
Surrogate - 4-Bromofluorobenzene *	%	98 %	118 %	103 %	109 %	111 %
Dilution Factor		1.0	1.0	1.0	1.0	1.0
Prep Date		12/28/04	12/28/04	12/28/04	12/28/04	12/28/04
Analysis Date		12/28/04	12/28/04	12/28/04	12/28/04	12/28/04
Batch ID		EDW125	EDW125	EDW125	EDW125	EDW125
Prep Method		8011	8011	8011	8011	8011
Analyst		SGB	SGB	SGB	SGB	SGB
Quantitation Factor		1.0	1.0	1.0	1.0	1.0
Aromatic Volatile Organics (8260B)						
Benzene	ug/l	13000	<1.0	<1.0	230	2.2
Ethylbenzene	ug/l	320J	<5.0	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	ug/l	15000	<5.0	<5.0	<5.0	12
Toluene	ug/l	300J	<5.0	<5.0	<5.0	<5.0
Xylenes, Total	ug/l	1900	<10	<10	<10	<10
Naphthalene	ug/l	400J	<5.0	<5.0	21	<5.0
Surrogate - Dibromofluoromethane *	%	100 %	104 %	88 %	98 %	108 %
Surrogate - Toluene-d8 *	%	96 %	97 %	95 %	98 %	98 %
Surrogate - 4-Bromofluorobenzene *	%	92 %	94 %	88 %	91 %	95 %
Dilution Factor		100	1	1	1	1
Prep Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Analysis Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Batch ID		LEW199A	LEW199A	LEW199A	LEW199A	LEW199A
Prep Method		5030B	5030B	5030B	5030B	5030B
Analyst		WD	WD	WD	WD	WD
Quantitation Factor		100	1	1	1	1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
12681-6	MW-18R	Liquid	12/22/04	12/21/04 11:45	
12681-7	MW-19R	Liquid	12/22/04	12/21/04 09:10	
12681-8	MW-20R	Liquid	12/22/04	12/21/04 01:00	
12681-9	MW-21	Liquid	12/22/04	12/20/04 14:35	
12681-10	MW-24	Liquid	12/22/04	12/20/04 15:00	

Parameter	Units	Sample ID 12681-6 MW-18R	12681-7 MW-19R	12681-8 MW-20R	12681-9 MW-21	12681-10 MW-24
Microextractable Organics (8011)						
1,2-Dibromoethane (EDB)	ug/l	<0.020	<0.020	54	<0.020	0.021
Surrogate - 4-Bromofluorobenzene *	%	109 %	111 %	0 %D	112 %	86 %
Dilution Factor		1.0	1.0	50	1.0	1 0
Prep Date		12/28/04	12/28/04	12/28/04	12/28/04	12/28/04
Analysis Date		12/28/04	12/28/04		12/28/04	12/28/04
Batch ID		EDW125	EDW125	12-30	EDW125	EDW125
Prep Method		8011	8011	8011	8011	8011
Analyst		SGB	SGB	SGB	SGB	SGB
Quantitation Factor		1.0	1.0	50	1.0	1.0
Aromatic Volatile Organics (8260B)						
Benzene	ug/l	<1.0	<1.0	9100	<1.0	<1.0
Ethylbenzene	ug/l	<5.0	<5.0	1900	<5.0	<5.0
Methyl t-butyl ether (MTBE)	ug/l	<5.0	41	890	<5.0	<5.0
Toluene	ug/l	<5.0	<5.0	20000	<5.0	<5.0
Xylenes, Total	ug/l	<10	<10	9800	<10	<10
Naphthalene	ug/l	<5.0	<5.0	660	<5.0	<5.0
Surrogate - Dibromofluoromethane *	%	109 %	108 %	110 %	112 %	112 %
Surrogate - Toluene-d8 *	%	99 %	98 %	99 %	98 %	99 %
Surrogate - 4-Bromofluorobenzene *	%	96 %	94 %	97 %	95 %	99 %
Dilution Factor		1	1	100	1	1
Prep Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Analysis Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Batch ID		LEW199B	LEW199B	LEW199B	LEW199B	LEW199B
Prep Method		5030B	5030B	5030B	5030B	5030B
Analyst		WD	WD	WD	WD	WD
Quantitation Factor		1	1	100	1	1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
12681-11	MW-25	Liquid	12/22/04	12/20/04 15:40	
12681-12	MW-26	Liquid	12/22/04	12/20/04 14:10	
12681-13	MW-27	Liquid	12/22/04	12/20/04 13:35	
12681-14	PW-28	Liquid	12/22/04	12/20/04 14:00	
12681-15	MW-29	Liquid	12/22/04	12/20/04 12:55	

Parameter	Units	Sample ID 12681-11 MW-25	12681-12 MW-26	12681-13 MW-27	12681-14 PW-28	12681-15 MW-29
Microextractable Organics (8011)						
1,2-Dibromoethane (EDB)	ug/l	0.16P	6.1	<0.020	<0.020	<0.020
Surrogate - 4-Bromofluorobenzene *	%	100 %	0 %D	94 %	123 %	118 %
Dilution Factor		1.0	10	1.0	1.0	1.0
Prep Date		12/28/04	12/28/04	12/28/04	12/28/04	12/28/04
Analysis Date		12/28/04	12/30/05	12/28/04	12/28/04	12/28/04
Batch ID		EDW125	EDW125	EDW125	EDW125	EDW125
Prep Method		8011	8011	8011	8011	8011
Analyst		SGB	SGB	SGB	SGB	SGB
Quantitation Factor		1.0	10	1.0	1.0	1.0
Aromatic Volatile Organics (8260B)						
Benzene	ug/l	1200	3400	<1.0	<1.0	<1.0
Ethylbenzene	ug/l	<4.5	2700	<5.0	<5.0	<5.0
Methyl t-butyl ether (MTBE)	ug/l	370	<89	<5.0	<5.0	<5.0
Toluene	ug/l	<4.0	21000	<5.0	<5.0	<5.0
Xylenes, Total	ug/l	210	15000	<10	<10	<10
Naphthalene	ug/l	180	940	<5.0	<5.0	<5.0
Surrogate - Dibromofluoromethane *	%	109 %	112 %	111 %	96 %	108 %
Surrogate - Toluene-d8 *	%	100 %	98 %	98 %	100 %	100 %
Surrogate - 4-Bromofluorobenzene *	%	95 %	96 %	97 %	91 %	94 %
Dilution Factor		5	100	1	1	1
Prep Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Analysis Date		12/29/04	12/29/04	12/29/04	12/29/04	12/29/04
Batch ID		LEW199B	LEW199B	LEW199B	LEW199B	LEW199B
Prep Method		5030B	5030B	5030B	5030B	5030B
Analyst		WD	WD	WD	WD	WD
Quantitation Factor		5	100	1	1	1

Analytical Data Report

Lab Sample ID	Description	Matrix	Date Received	Date Sampled	SDG#
12681-16	MW-30	Liquid	12/22/04	12/20/04 13:10	
12681-17	PW-31	Liquid	12/22/04	12/21/04 10:05	

Parameter	Units	Sample ID 12681-16 MW-30	12681-17 PW-31
Microextractable Organics (8011)			
1,2-Dibromoethane (EDB)	ug/l	<0.020	42
Surrogate - 4-Bromofluorobenzene *	%	122 %	0 %D
Dilution Factor		1.0	50
Prep Date		12/28/04	12/28/04
Analysis Date		12/28/04	12/30/05
Batch ID		EDW125	EDW125
Prep Method		8011	8011
Analyst		SGB	SGB
Quantitation Factor		1.0	50
Aromatic Volatile Organics (8260B)			
Benzene	ug/l	<1.0	7100
Ethylbenzene	ug/l	<5.0	1600
Methyl t-butyl ether (MTBE)	ug/l	<5.0	700
Toluene	ug/l	<5.0	15000
Xylenes, Total	ug/l	<10	8500
Naphthalene	ug/l	<5.0	440
Surrogate - Dibromofluoromethane *	%	113 %	112 %
Surrogate - Toluene-d8 *	%	100 %	100 %
Surrogate - 4-Bromofluorobenzene *	%	95 %	94 %
Dilution Factor		1	50
Prep Date		12/29/04	12/29/04
Analysis Date		12/29/04	12/29/04
Batch ID		LEW199B	LEW199B
Prep Method		5030B	5030B
Analyst		WD	WD
Quantitation Factor		1	50

Order Number: C412681

Unless otherwise noted, all analyses performed by STL Pensacola,
3355 McLemore Drive - Pensacola FL 32514. Telephone:(850) 474-1001 Fax:(850) 478-2671.
FLDOH Certification #E81010.

Access Analytical - Chain of Custody Record

Laboratory ID: _____

Project Submission #: 73048020 RUSH # C412681 PO #: _____

Company Name: GAGE Group

Address: 521 Clemson Rd

City: Cola. State: SC Zip: 29229

Project Name: SC-~~56~~ RM 576

Report To: Gene Partin

Sampled By (print): Ryan McLain & Regan Norris

Preservative (*see codes below)

REQUESTED LAB ANALYSIS

ACCESS ANALYTICAL, INC.

7478 Carlisle Street
Irmo, SC 29063

Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	BTEX, Naph's, MTBE	EDB						NOTES / COMMENTS
MW-6	12/20/04	1240	L	4	2	2						
MW-8R	↓	1050	↓	↓	↓	↓						
MW-9B		1110										
MW-12R	12/20/04	1625										
MW-15	12/21/04	1240										
MW-~~16~~ RM 18R	↓	~~1130~~ 1145 RM										
MW-19R		910										
MW-20R		1000										
MW-21	12/20/04	1435	↓	↓	↓	↓						
MW-24	12/20/04	1500	L	4	2	2						

Turnaround Time:

✓ Std. (5-7 Bus. days)

___RUSH*

*Date Required:_____

(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice? ✓ Yes ___No

Project Location: ✓ SC ___NC ___Other_____(specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	12/21/04	1615	[signature]
[signature]	12/21/04	1700	Fed Ex
Fed Ex	12/22/04	1055	[signature]

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO_3, 3=H_2SO_4, 4=NaOH, 5=$Na_2S_2O_3$, 6=$NaHSO_4$, Other=Specify

Access Analytical, Inc.
See Reverse for Terms and Conditions

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
Pink Copy - Client Copy

Access Analytical - Chain of Custody Record

Laboratory ID: _____

Project Submission #: 7304 8020 RUSH # C412681 PO #: _____

Company Name: GAGE Group

Address: 521 Clemson Rd

City: Cola. State: SC Zip: 29229

Project Name: SC-576

Report To: Gene Partin

Sampled By (print): Ryan McLain & Regan Norris

Preservatives (Pres codes below): 1 | 1

Sample Label	Date Collected	Time Collected	Matrix	# of Cont	REQUESTED LAB ANALYSIS: 1	BTEX, Naphs, MTBE	EDB
MW-25	12/20/04	1540	L	4		2	2
MW-26		1410					
MW-27		1335					
PW-28		1400					
MW-29		1255					
MW-30	12/20/04	1310					
PW-31	12/21/04	1005	L	4		2	2

Access Analytical, Inc.
7478 Carlisle Street
Irmo, SC 29063
Phone: (803) 781-4243
Fax: 781-4303
Toll Free (888) 315-4243
www.accessanalyticalinc.com

NOTES / COMMENTS

Turnaround Time:
- ✓ Std. (5-7 Bus. days)
- ___ RUSH*

*Date Required: _____
(For rush work, results faxed by end of business day on date required)

Samples Recd. on Ice?
- ✓ Yes
- ___ No

Project Location:
- ✓ SC
- ___ NC
- ___ Other _____ (specify)

Relinquished By:	Date:	Time:	Received By:
[signature]	12/21/04	1615	[signature]
[signature]	12/21/04	1700	Fed Ex
Fed Ex	12/22/04	1055	[signature]

* Preservative Codes (*place corresponding # in block above analysis field*): 0=None, 1=HCL, 2=HNO3, 3=H2SO4, 4=NaOH, 5=Na2S2O3, 6=NaHSO4, Other=Specify

Access Analytical, Inc.
See Reverse for Terms and Conditions

Original Copy - Returned w/Report
Yellow Copy - Access File Copy
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APPENDIX D

Disposal Manifests

APPENDIX D
Disposal Manifests

MATERIAL MANIFEST	JBR Environmental Services P. O. Box 4098 Spartanburg, SC 29305	Manifest Document No. D-0121057
		Page of
Emergency Phone Number: (864) 583-2717		Job No. D-0121057

GENERATOR INFORMATION

Name: COAGE GROUP		US EPA ID No.
Street Address ONE STOP 201 N. MAIN ST. McCORMICK, SC	Mailing Address 521 CLEMSON RD COLUMBIA, SC Chris Reoul	Phone No. 803-741-9000 Contact GENE PARTIN

DESCRIPTION OF MATERIALS

	HM	USDOT Proper Shipping Name (Complete All Items for Hazardous Materials)	Hazard Class	UN/NA ID No.	Packing Group	Containers Qty	Containers Type	Total Quantity	Unit Wt./Vol.
a.		NON-HAZ LIQUID, NOS				2	DM		6.08 TON
b.		NON-HAZ SOLID, NOS				25	DM		
c.									

ADDITIONAL INFORMATION		ERG No.	JBR Profile Code	Facility Use
a.	PURGE WATER		GG-1204489	APP FOR DISPOSAL
b.	SOIL		GG-0105512	APP FOR DISPOSAL
c.				

GENERATORS CERTIFICATION

This is to certify that the above -described materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. I further certify that none of the materials described above are a hazardous waste as defined by EPA 40 CFR Part 261 or any applicable state law, and unless specifically identified above, the materials contain less than 1,000 ppm total halogens and do not contain quantifiable levels (2 ppm) of PCBs as defined by EPA 40 CFR Parts 279 and 761.

Printed/Typed Name	Signature	Mo./Day/Yr.
KALPANA PATEL	Kalpana Patel	1-21-05

TRANSPORTER INFORMATION

Transporter: JBR Environmental Services Address: 210 Alice Street, Spartanburg, SC 29303	*I hereby acknowledge receipt of the above-described materials for transport from the generator site listed above.* Signature [signature] Shipment Date 1/21/05
Transporter or EPA ID No.: SCR000004358 Unit No.: Phone: 864-583-2717	*I hereby acknowledge that the above-described materials were received from the generator site and were transported to the facility listed below.* Signature [signature] Delivery Date 1/21/05

FACILITY INFORMATION

Facility: JBR Environmental Services Address: 210 Alice Street, Spartanburg, SC 29303	*I hereby acknowledge receipt of the materials covered by this manifest except for any discrepancy noted below.* Signature [signature] Receipt Date 1/21/05
Facility or EPA ID No.: SCR000004358 Phone: 864-583-2717 Contact: Rex Russell	**Discrepancies** **Routing Codes** **Handling Methods.** a. [illegible] b. c.

Original - Facility Retain COPY 2 - Return to Generator COPY 3 - Transporter Retain COPY 4 - Generator Retain

521 Clemson Road I Columbia, SC 29229 I 803-741-9000 I FAX 803-741-9900
www.terracon.com I Offices Nationwide

Geotechnical and GeoEnvironmental Engineers

D H E C

PROMOTE PROTECT PROSPER

W. Marshall Taylor Jr., Acting Director

Promoting and protecting the health of the public and the environment

June 15, 2015

CROWN CENTRAL LLC
C/O ANNIE SMITH-JONES
40 HUDSON STREET
SUITE 107
ANNAPOLIS MD 21401

Re: **Corrective Action Solicitation**
Mine Street Mart, 201 North Mine Street, McCormick, SC 29835
UST Permit #06443
Release Reported December 13, 1989
Report Received February 3, 2015
McCormick County

Dear Ms. Smith-Jones:

The Underground Storage Tank (UST) Management Division (Division) of the South Carolina Department of Health and Environmental Control (Agency) has reviewed the February 3, 2015 monitoring report submitted by Terracon. Active corrective action is necessary to remediate the subsurface and ensure there is no potential impact to human health or the environment at the receptor locations.

The site's priority classification is 2BA. Therefore, funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account are currently available for implementation of an acceptable method of corrective action. The selected technology must completely reduce the petroleum chemicals of concern to those concentrations listed in the Corrective Action Solicitation package. All rehabilitation activities associated with a release from an UST must be performed by a SCDHEC certified site rehabilitation contractor as required by R.61-98 and in accordance with the UST Quality Assurance Program Plan (QAPP), Revision 2.0.

The Division understands that you wish to select the rehabilitation contractor to perform the corrective action. In addition to the three solicitation responses you personally obtain as outlined below, the Agency will announce the Corrective Action Solicitation in the South Carolina Business Opportunities. This announcement is to ensure enough responses are received to establish a fair and competitive price to initiate corrective action in a timely manner. This announcement will clearly indicate that the UST owner/operator will make the contractor selection to receive financial and technical approval.

Procedures

The following steps should be followed as you secure responses to the Corrective Action Solicitation.

Step 1. Select a minimum of three (3) certified site rehabilitation contractors to complete the enclosed Financial Approval Form. A list of currently certified contractors is enclosed.

Step 2. Please provide each of the proposed site rehabilitation contractors a copy of this letter. The Corrective Action Solicitation package is available at http://www.scdhec.gov/environment/lwm/usthome/OOBid.htm.

Step 3. Direct each of your proposed site rehabilitation contractors to submit their Financial Approval Form, addressed to the attention of Lee A. Monts, by the date specified in the table on Page 1 of the attached solicitation. The form may be hand delivered or mailed in a sealed envelope to SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC 29201. The envelope must be marked as Financial Approval Form for UST Permit #06443.

You will be provided copies of all the solicitation response forms submitted. Upon review of the responses, you will be required to complete a Corrective Action Solicitation Proposal - Summary form that designates which site rehabilitation contractor you wish to use. Once you select a contractor, the Agency strongly suggests that a written contract between you and the contractor be developed. The only parties to this contract would be you and the contractor you choose. Since the Agency's only function would be to monitor the corrective action activities to ensure progress toward achieving defined corrective actions goals, rather than perform and/or oversee the associated activities, the Agency would not be party to your contract. Please note that under R.61-92, Part 280: Underground Storage Tank Control Regulations, you as the owner/operator are ultimately responsible to the Agency for the actions of your contractor.

On all future correspondence, please reference the **UST Permit #06443.** Please note that approval from the Agency must be issued before corrective action begins. If you have questions concerning this correspondence, please contact me by telephone at (803) 898-0606, by fax at (803) 898-0673, or by email at bryantjc@dhec.sc.gov.

Sincerely,

John C. Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Corrective Action Solicitation Package
List of Certified Site Rehabilitation Contractors

cc: Technical File (Cover letter and solicitation package)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

I. FINANCIAL APPROVAL FORM

A. ACCEPTANCE and DELIVERY STATEMENT

In compliance with the solicitation and subject to all conditions thereof, the Offeror agrees, if selected by the UST Owner/Operator within _____ days from the date of financial approval form submittal, to complete the corrective action as specified at the price set forth for the site as stated below. For the purpose of this submittal and possible acceptance of financial approval, I certify that this company understands the nature of the release(s) and the geologic conditions at the site as documented in the technical file and this solicitation. **Any quantities listed in the corrective action method(s) below are estimates and changes to those quantities or to the listed method(s) will not affect the financial approval amount.** Additionally, I certify that this company understands that acceptance is based on total cost to treat the area of concern.

_____ _____

Offeror (Print) UST Site Rehabilitation Contractor Certification #

_____ _____

Registered Professional Name (Print) Registered Professional Signature (required)

P.G. ☐ P.E. ☐ (check appropriate box) Professional Certification #

_____

B. CORRECTIVE ACTION SOLICITATION RESPONSE

Please respond to the following questions for Mine Street Mart, 201 North Mine Street, McCormick, SC 29835, UST Permit #06443:

1. State and briefly describe the corrective action method(s) or technology(ies) that will be discussed in detail in the CAP to achieve completion in five years, should financial approval occur. Attach an additional sheet if necessary.

2. The Corrective Action Completion Time, in months, to complete the corrective action from the date of corrective action plan implementation until the final corrective action goal has been achieved and maintained for 2 consecutive quarters is _____ months. All activities must be completed within 5 years of the date of financial approval unless otherwise approved in writing by the Agency.

3. The Corrective Action Cost, in whole dollars, regardless of the type, quantity, or duration of the permitted technology applied, to treat the area of concern shown in the Appendix such that the FPP thicknesses do not exceed 0.01' and CoC concentrations do not exceed the SSTLs at any point in the area of concern; complete all associated monitoring and post-corrective action verification; prepare all plans, reports, and correspondence; obtain and meet all terms and conditions of all required permits and licenses; design, install, monitor, operate, maintain, and

when completed, properly abandon or remove all assessment and corrective action components; and complete other items outlined in this solicitation is:

$_____

II. SCOPE OF WORK

A. DEFINITIONS:

For the purposes of this solicitation the following terms and definitions shall apply:

1. Area of Concern: The horizontal and vertical area in which concentrations of petroleum chemicals of concern have been quantified and/or can be relatively determined by actual data and subsequent interpretation using accepted scientific principles.

2. Catastrophic Occurrence: An event (e.g., hurricane) that results in a declared state of emergency and directly and substantially affects the Contractor's operations at a site.

3. Chemicals of Concern (CoC): Specific petroleum constituents that are identified for monitoring and corrective action.

4. Corrective Action Completion Time: The time in months, submitted by the Contractor, necessary to reduce FPP thicknesses to at or below 0.01' and CoC concentrations to below site-specific target levels (SSTLs), verify attainment of corrective action goals, and remove and/or properly abandon assessment and corrective action components (wells, treatment lines, etc.). All activities must be completed within five years of the date of financial approval unless otherwise approved in writing by the Agency.

5. Corrective Action Cost: The total amount established via the procurement process to complete the scope of work/specifications detailed in the solicitation.

6. Corrective Action Plan (CAP): A document submitted by the Contractor that outlines and details proposed corrective action(s) and contains a timetable consistent with the Corrective Action Completion Time.

7. Corrective Action Plan Implementation Date: The date on which the Contractor initiates corrective action (i.e., physical treatment activities such excavation, extraction, injection, etc.) under the approved Corrective Action Plan. The date must be within 30 days of receipt of a Notice to Proceed issued by the Agency.

8. Day: For the purpose of this solicitation, any reference to day(s) will be intended as calendar day(s) and not business day(s).

9. Free-Phase Product (FPP): Petroleum lighter than water non-aqueous phase liquid (LNAPL) identified for monitoring and corrective action.

10. QAPP: UST Management Division Quality Assurance Program Plan.

11. Site Incentive Period: The period of time in months established by the Agency during which the Contractor must achieve the corrective action goals (see Solicitation Item III.A.9.) in order to qualify for the Early Completion Incentive.

B. SOLICITATION STATEMENT

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (Agency) is seeking services on behalf of Crown Central, LLC to perform active corrective action of a petroleum release or petroleum releases at a regulated underground storage tank site in accordance with defined corrective action goals. The objectives are to prevent significant further migration of FPP and CoC, to remove measurable (>0.01') thicknesses of FPP, and to reduce CoC concentrations to or below SSTLs established by the Agency. All Offerors must be SCDHEC-certified Class I Site Rehabilitation Contractors.

C. SCHEDULE OF DELIVERABLES

The following table summarizes the deadlines for deliverables associated with this solicitation:

DELIVERABLE DUE	DEADLINE
Questions	By 4:30PM on July 3, 2015
Financial Approval Form	By 4:30PM on July 20, 2015 in sealed envelope
QAPP Contractor Addendum or Site-Specific Work Plan for Initial Monitoring Report	15 days from date of financial approval
Corrective Action Plan and QAPP Contractor Addendum or Site-Specific Work Plan for Corrective Action	30 days from date of financial approval
Initial Monitoring Report	45 days from approval of QAPP Contractor Addendum or Site-Specific Work Plan for Initial Monitoring Report
CAP Implementation	30 days from Notice to Proceed
CAP Implementation Report	60 days from Notice to Proceed
Notify Project Manager of Sampling	At least 2 weeks prior to sampling event
Corrective Action System Evaluation Report (CASE)	Semi-annually with initial report due within 90 days of the CAP Implementation Report or other schedule approved by the Agency
Water Supply Well Sampling Results	Quarterly from date of CAP Implementation Report or other schedule approved by the Agency
Update QAPP Contractor Addendum or Site-Specific Work Plan for Corrective Action	First quarter of each year or as needed until completion of corrective action
Abandon and/or Remove Assessment and Corrective Action Components	Within 60 days from notice by the Agency

D. SITE SPECIFIC INFORMATION

The scope of work defined in this solicitation is to be implemented at Mine Street Mart, 201 North Mine Street, McCormick, SC 29835, UST Permit #06443 for the release(s) reported on December 13, 1989. A copy of the technical file will be available on-line at http://www.scdhec.gov/environment/lw/ust/releaseassessmentclean-up/correctiveactionopenbids/ until

the initial Corrective Action Plan is approved. The technical file may also be reviewed at the Freedom of Information (FOI) Office located at the Sims/Aycock Building, 2600 Bull Street, Columbia, SC (803-898-3882).

III. SOLICITATION REQUIREMENTS

A. GENERAL REQUIREMENTS

1. PAYMENT PERIOD: The payment period will be effective from the date of financial approval until corrective action is complete as outlined in this solicitation.

2. EQUAL OPPORTUNITY EMPLOYMENT: Contractor must agree to make positive efforts to employ women, other minorities, and minority-owned businesses.

3. AMENDMENTS: All amendments to this solicitation shall be in writing from the Agency. The Agency shall not be legally bound by any amendment, interpretation or settlement that is not in writing.

4. RESTRICTION . . . THE ONLY OFFICIAL CONTACT PERSON AT THE AGENCY DURING THE SOLICITATION AND FINANCIAL APPROVAL PROCESS IS LEE MONTS. OFFERORS ARE NOT TO CONTACT ANY OTHER AGENCY PERSONNEL OR OTHER CONTRACTORS.

5. FINANCIAL APPROVAL: The UST Owner/Operator has the right to select an SCDHEC-certified Class I Site Rehabilitation Contractor to perform corrective action in accordance with SUPERB Act (Title 44, Chapter 2 of the Code of Laws of South Carolina), and is not limited to Contractors who respond to this solicitation. Therefore, financial approval may be made to a Contractor who has been selected by the Owner/Operator but has not responded to this solicitation. The financial approval will be for the reasonable cost as defined in Solicitation Item III.A.6. The selected Contractor must agree to make positive efforts to employ women, other minorities, and minority-owned businesses. **The Agency strongly suggests that a written contract be developed between the Owner/Operator and the selected Contractor following completion of the solicitation process. The Agency will not be a party to this contract. If the selected Contractor does not or cannot complete the corrective action in accordance with the specifications outlined in this solicitation, the Owner/Operator will be required to find another SCDHEC-certified Class I Site Rehabilitation Contractor to complete the corrective action for the remainder of the existing financial approval amount. Additional SUPERB funding in excess of financial approval amount may not be allowed. Per the Underground Storage Tank Control Regulations R. 61-92, Part 280, the Owner/Operator is ultimately responsible to the Agency for the actions of their selected Contractor. Therefore, the Agency will pursue enforcement actions against the Owner/Operator if their selected Contractor does not make satisfactory progress towards achieving corrective action goals as outlined in Solicitation Item III.A.9.**

6. REASONABLE COST: The lowest Corrective Action Cost submitted on a Financial Approval Form in response to this solicitation will be considered the reasonable or SUPERB-allowable

cost to complete corrective action as defined by the solicitation. The Agency reserves the right to reject any and all submitted Financial Approval Forms that propose Corrective Action Costs that are not advantageous to the State of South Carolina, that propose a Corrective Action Completion Time that is not protective of public health and the environment, and that propose remediation technology(ies) or method(s) that cannot be permitted in the State of South Carolina and/or that are not protective of public health and the environment.

a. The Corrective Action Completion Time for the site shall be determined by the Offeror and entered on the Financial Approval Form in Solicitation Item I.B.

    1) Time is of the essence in completing the site work to restore the aquifer and protect human health and the environment. Therefore, the Offeror is encouraged to strive for efficient corrective action methods and to propose the shortest practical completion time for the site.

    2) The Offeror shall enter the number of months in the space provided for the site in Solicitation Item I.B.

7. SITE WORK VERIFICATION: The Contractor will be required to treat the area of concern as defined in Solicitation Item II.A.1. and as shown in the Appendix (Figure 4). Verification that FPP removal and interim corrective action goals have been achieved will be based upon gauging/sampling results from the site-specific target level (SSTL) wells and sampling points listed in the Appendix, and extraction wells installed as part of corrective action. Verification that the final corrective action goal has been achieved will be based upon sampling results from all wells and gauging points listed in the Appendix and all verification wells to be installed at locations and depths designated by the Agency (see Solicitation Item IV.B.11. for more details). It is understood that seasonal fluctuations in FPP thicknesses and CoC concentrations will occur. It is the intent of this corrective action to prevent further degradation of the aquifer(s) by continued migration of FPP and/or CoC into areas not previously impacted. If the corrective action allows FPP and/or CoC to migrate into areas not previously impacted, the Contractor will be responsible for completing assessment activities necessary to re-define the impacted areas and for providing amendments to their Corrective Action Plan (CAP) to address the additional impact.

8. REPORTS: Reports are to be submitted to the Agency on, or prior to, established due dates unless otherwise approved in writing by the Agency. Deliver one paper copy and one electronic copy of each plan and report to: SCDHEC, Bureau of Land and Waste Management, UST Management Division 2600 Bull Street, Columbia, SC 29201. The electronic copy should be submitted on compact disk (CD) in Personal Data Format (PDF). All data tables should be in MS Excel or comparable format. One copy of each plan or report must be delivered to each party listed on the Distribution List included in the Appendix. The distribution copies may be electronic or paper as agreed upon by the party and the Contractor. Based on permitting and other requirements, additional copies of plans and reports may be required by the Agency. The Agency will notify the Owner/Operator of the exact number of copies of each document to be submitted.

9. INVOICING: Invoices will be submitted to SCDHEC, Bureau of Land and Waste

Management, UST Management Division, ATTN: Financial Section, 2600 Bull Street, Columbia, SC 29201, using the Corrective Action (CA) Invoice form. The initial invoice must be received at the above address within 4 months of CAP approval or funds will be uncommitted as required by the Section 44-2-40(B) of the SUPERB Act. If funds are uncommitted, the invoice will be held until funds become available. **Payment will only be made for achieving corrective action goals as specified below. No partial payments will be made, except as outlined in Solicitation Item IV B 4.** Payment to the Contractor will be on a pay-for-performance basis as follows:

a. Payment of 40% of the total Corrective Action Cost will be made within 90 days following receipt of an invoice and documentation that the Contractor has completed the Corrective Action Plan implementation. All corrective action activities must be as described in the CAP and are subject to the limitations of Section 44-2-40 of the SUPERB Act. The implementation should be documented in the Corrective Action Plan Implementation Report. The Corrective Action Plan Implementation Report must include the construction logs for all injection and/or extraction wells installed in accordance with the CAP.

b. Payment of 30% of the total Corrective Action Cost will be made based on achieving FPP removal,interim CoC concentration reduction goals, and a final CoC concentration reduction goal as verified in the SSTL wells and sampling points listed in the Appendix, and in all extraction wells, and in all verification wells. Payments will be made upon receipt of invoices and documentation that the Contractor has achieved FPP removal, and interim and final goals of 60, 90 and 100% reduction of the total CoC concentrations above the SSTLs **by the implementation of corrective action**. CoC concentrations and SSTLs are listed in the Appendix.

    1) FPP removal will be achieved when the FPP thickness does not exceed 0.01' in all SSTL wells and sampling points listed in the Appendix, and in all extraction wells. Payment of 10% of the total Corrective Action Cost will be made upon verification (see Solicitation Item IV.B.11.for the method of verification) that measurable (>.01') FPP has been removed. **Achievement of this goal must be verified by gauging conducted by the Agency.**

    2) The first interim concentration reduction goal will be achieved when 60% of the total CoC concentration above SSTLs in the SSTL wells and sampling points listed in the Appendix is removed. The formula listed in the site rehabilitation section of the QAPP will be used to calculate the percent total concentration reduction. Payment of 10% of the total Corrective Action Cost will be made upon confirmation by CASE report or upon verification (see Solicitation Item IV.B.11.for the method of verification) that at least 60% of the total CoC concentration above SSTLs has been removed.

    3) The second interim concentration reduction goal will be achieved when 90% of the total CoC concentration above SSTLs in the SSTL wells and sampling points listed in the Appendix is removed. The formula listed in the site rehabilitation section of the QAPP will be used to calculate the percent total concentration reduction. Payment of 5% of the total Corrective Action Cost will be made upon verification (see Solicitation Item

IV.B.11. for the method of verification) that at least 90% of the total CoC concentration above SSTLs has been removed. **Achievement of this interim goal must be verified by split sampling conducted with the Agency.**

4) The final concentration reduction goal will be achieved when 100% of the total CoC concentration above SSTLs in the SSTL wells and sampling points listed in the Appendix is removed. The formula listed in the site rehabilitation section of the QAPP will be used to calculate the percent total concentration reduction. Payment of 5% of the total Corrective Action Cost will be made upon verification (see Solicitation Item IV.B.11. for the method of verification) that 100% of the total CoC concentration above SSTLs has been removed. **The 100% payment milestone must be verified following two consecutive quarters with all corrective action activities completely ceased prior to payment eligibility. Achievement of this goal must be verified by split sampling conducted with the Agency (to be completed during the 2nd 100% verification quarter).** CoC concentrations must not exceed SSTLs in all wells and sampling points listed in the Appendix, in all verification wells, and at any point in the area of concern.

c. The final 30% of the total Corrective Action Cost will be paid upon receipt of an invoice and verification that all assessment and corrective action components (e.g., piping, wells, trenches, etc.) have been removed from the site or properly abandoned (see Solicitation Items IV.B.11-14. for more details), and the facility and associated adjacent properties have been restored to the condition that existed prior to assessment and corrective action (Solicitation Item IV.B.13.). If 100% CoC concentration reduction is not achieved, the final payment may be reduced accordingly (e.g., 98% paid for 98% final reduction) as mutually agreed upon by the Agency and the Contractor.

10. LIMITATIONS: **The approved Corrective Action Cost will be final and will not be increased or cancelled for any reason (e.g., unanticipated iron fouling of a system, wells clogging because of biological activity or sediments, damage by lightning, increased subcontractor costs, loss of utilities, modification to the system to meet the remediation goals, etc.) with the exception of: 1) unforeseen subsurface conditions as determined solely at the discretion of the Agency; or 2) identification of additional FPP or CoC from a confirmed release that occurs subsequent to financial approval and that adversely impacts corrective action as determined by the Agency. Payment will only be made for achieving the corrective action goals as specified in this solicitation. No interim or partial payments will be made once corrective action is initiated, except as outlined in Solicitation Item IV.B.4. Once corrective action has been initiated and in the event of a cancellation due to any of the conditions described in this solicitation Item, final payment, if appropriate, will be a percentage of the Corrective Action Cost. The percentage will be equal to the actual percent total CoC concentration reduction based upon last sampling results, as verified by the Agency, from all wells and sampling points listed in the Appendix and all verification wells, less the amount previously paid.** Contractor-owned items used on-site for the corrective action that are damaged or destroyed by common acts of nature, improper maintenance or handling, theft or vandalism will not be replaced or reimbursed by the SUPERB Account. The Contractor cannot delay progress or suspend corrective action activities at the site based upon a claim of a suspected new petroleum release from the UST system. Unless

directed otherwise by the Agency, the Contractor must continue to perform corrective action activities under this solicitation during any period of time during which a new petroleum release from the UST system is being investigated. The Contractor must clearly demonstrate sufficient evidence of the release in the form of analytical test results or other demonstrative evidence to the Agency. The determination that a new petroleum release from the UST system has occurred that post-dates the financial approval, and that adversely impacts corrective action at the site, is the sole discretion of the Agency.

B. SPECIFIC REQUIREMENTS

1. SCOPE OF SOLICITATION: This solicitation is for corrective action at one site in South Carolina.

2. INQUIRIES: A copy of the technical file will be available on-line at http://www.scdhec.gov/environment/lw/ust/releaseassessmentclean-up/correctiveactionopenbids/ until the initial Corrective Action Plan is approved. The technical file may also be reviewed at the Freedom of Information (FOI) Office located at the Sims/Aycock Building, 2600 Bull Street, Columbia, SC (803-898-3882). All questions or requests for information must be submitted in writing to Lee Monts, FAX number (803) 898-0673, in accordance with the date specified in Solicitation Item II.C. After this date, no further questions or requests for information will be addressed. A written response will be provided.

3. PROVISION FOR EARLY COMPLETION INCENTIVE: The Agency will pay the Contractor an incentive of 10% of the Corrective Action Cost for early completion, subject solely to the conditions set forth in this provision. Payment will be made if the corrective action goals have been met in accordance with the terms and conditions of this solicitation prior to the end of the Site Incentive Period, as established by the Agency and verified in accordance with Solicitation Item IV.B.11.

   The Site Incentive Period will commence on the Corrective Action Plan Implementation Date. A month starts at 12:00 Midnight on the Corrective Action Plan Implementation Date and ends at Midnight preceding the same day of the following month. Months will be counted consecutively from the Corrective Action Plan Implementation Date. Following implementation, the Agency will notify the Contractor in writing of the closing date of the Site Incentive Period.

   The Site Incentive Period will not be adjusted for any reason, cause, or circumstance whatsoever, regardless of fault, save and except: 1) in the instance of a catastrophic occurrence (e.g., hurricane) that results in a declared state of emergency and that directly and substantially affects the Contractor's operations at a site and results in unavoidable delay of the corrective action, or 2) an unforeseen condition that could not have been anticipated following financial award to which the Agency has been notified in writing by the Contractor and as the Agency has approved in writing. In the event of a catastrophic occurrence or unforeseen condition on a specific site, the Agency shall determine the number of months reasonably necessary to extend the Site Incentive Period due solely to such catastrophic occurrence. Any amendments to the Site Incentive Period will be provided to the Contractor in writing.

The parties anticipate that routine delays may be caused by or arise from any number of events during the course of corrective action, including, but not limited to: work performed, work deleted, supplemental agreements, delays, disruptions, differing site conditions, utility conflicts, design changes or defects, extra work, right-of-way issues, permitting issues, actions of suppliers, subcontractors, or other Contractors, actions by third parties, revision of the work scope by the Contractor, weather, weekends, holidays, suspensions of the Contractor's operations, or any other such events, forces or factors experienced in environmental work. Such delays or events, and their potential impacts on performance by the Contractor are specifically contemplated and acknowledged by the Contractor upon entering into this contract, and shall not affect the Site Incentive Period or incentives set forth in this contract item. Further, any and all costs or impacts whatsoever incurred by the Contractor to complete corrective action within the Site Incentive Period, whether successful or not, shall be the sole responsibility of the Contractor in every instance.

The Contractor shall have no rights under the contract to make any claim arising out of this incentive provision except as is expressly set forth in this provision.

The Site Incentive Period for Mine Street Mart, 201 North Mine Street, McCormick, SC 29835, UST Permit #06443 is 36 months.

4. SITE-SPECIFIC DETAILS: A brief technical summary, including maps and data tables, is attached in the Appendix. A copy of the technical file will be available on-line at http://www.scdhec.gov/environment/lw/ust/releaseassessmentclean-up/correctiveactionopenbids/ until the initial Corrective Action Plan is approved. The technical file may also be reviewed at the Freedom of Information Office (FOI) located at the Sims/Aycock Building, 2600 Bull Street, Columbia, SC. Appointment(s) to view the technical file may be scheduled on weekdays between the hours of 8:30 A.M. to 5:00 P.M. by calling FOI at 803-898-3882. **Offerors are strongly encouraged to review the file(s) to ensure a complete understanding of corrective action requirements. The selected Contractor will be responsible for all information in the technical file(s).**

IV. SPECIFICATIONS for CORRECTIVE ACTION

A. GENERAL SPECIFICATIONS

1. SUBMITTALS: All offerors must submit a completed Financial Approval Form. All submittals must be either hand-delivered or mailed in a sealed envelope to SCDHEC, UST Management Division, 2600 Bull Street, Columbia, SC 29201, ATTN: Lee A. Monts. The envelope must be marked as a Financial Approval Form for Mine Street Mart, 201 North Mine Street, McCormick, SC 29835, UST Permit #06443. The Form outlines an approach to achieve the corrective action goals (i.e., removal of measurable (>0.01') FPP and reduction of CoC to SSTLs) and contains the following elements:

   a. A description of the proposed treatment method(s) or technology(ies) for corrective action.

b. The amount of time in months to meet the corrective action goals, install verification wells, and remove or abandon all assessment and corrective action components.

c. The total Corrective Action Cost (in U.S. dollars) to meet the corrective action goals and to remove or abandon all assessment and corrective action components.

2. MINIMUM REQUIREMENTS: Corrective action will be considered complete when: 1) the CoC concentrations are verified to be at or below SSTLs in all wells and sampling points listed in the Appendix, in all verification wells, and at any point in the area of concern **for two consecutive quarters;** 2) all assessment and corrective action components (e.g., piping, wells, trenches, etc.) have been removed from the site or are properly abandoned; and 3) the facility and associated adjacent properties have been restored to the condition that existed prior to assessment and corrective action in accordance with Solicitation Item IV.B.13. See Solicitation Item IV.B.11. for the method of verification. Per R. 61-98, all site rehabilitation activities associated with a UST release must be performed by an SCDHEC-certified Class I Site Rehabilitation Contractor. The Contractor will be required to adhere to all applicable portions of QAPP Revision 2.0. See http://www.scdhec.gov/environment/docs/QAPP_Rev-2-April2013.pdf and follow the link for UST Quality Assurance Program Plan for the most up-to-date version. All corrective action plans and reports must be sealed by a Professional Engineer or Professional Geologist registered in the State of South Carolina. All engineering reports, drawings and plans must be sealed by a Professional Engineer registered in the State of South Carolina. All laboratory analysis for CoC must be performed by an SC-certified laboratory. All monitoring, verification, injection and/or extraction wells must be installed and abandoned by an SC-certified well driller. All applicable certification, training, permits, applications, and fees associated with well installation; injection, discharge, treatment, or transportation of groundwater, air, or soil; construction or operation of a corrective action system; and any other action requiring a permit are the responsibility of the Contractor. Any required business or occupation license and occupational safety and health training (e.g., OSHA) as defined by the laws and regulations of the United States of America, the State of South Carolina, the county or city is also the responsibility of the Contractor. The terms and conditions of all applicable permits will be met. Any contaminated soil or construction debris, contaminated water, and FPP must be properly transported and disposed of, or treated at, an approved facility with prior approval from the Agency. Any costs for utilities construction and service (electric, telephone, sewer, etc.) required by the corrective action are the responsibility of the Contractor.

B. PERFORMANCE REQUIREMENTS

1. QAPP CONTRACTOR ADDENDA/SITE-SPECFIC WORK PLANS: The Contractor must submit a QAPP Contactor Addendum or Site-Specific Work Plan for the Initial Monitoring Report **within 15 days** from the date of financial approval. The Addendum or Work Plan for the Initial Monitoring Report must be approved by the Agency prior to initiation of work at the site. A QAPP Contractor Addendum or Site-Specific Work Plan for corrective action must be submitted with the Corrective Action Plan (CAP). The Addendum or Work Plan action must be updated during the first quarter of each year or as needed until completion of corrective action.

2. CORRECTIVE ACTION PLAN: The Contractor must complete and submit a detailed Corrective Action Plan and QAPP Contractor Addendum or Site-Specific Work Plan for corrective action within 30 days from the date of financial approval. Copies of the CAP must be distributed in accordance with Solicitation Item III.A.8. The CAP must define the method(s) and technology(ies) proposed to achieve corrective action goals in a manner that is consistent with the Corrective Action Completion Time submitted by the Contractor. **The corrective action method(s) or technology(ies) must be designed to prevent vapors from entering onsite or adjacent structures.** It must be shown, by use of scientific models, computations, or discussion, how FPP will be removed and CoC concentrations reduced by each method and technology proposed. Any assumptions used in a model will be listed or shown, as well as appropriate references. **The use of monitoring well(s) for injection, extraction, or FPP recovery purposes is not allowed.** Accordingly, the CAP may propose installation of additional injection, extraction, or compliance wells. General construction details will be included in the CAP (e.g. install 4 extraction wells, install 8 injection wells, excavate 3,000 cubic yards of impacted soils, etc.) as well as details of assessment and corrective action component abandonment and/or removal.

   A corrective action timetable that includes demobilization and site restoration (Solicitation Items IV. B. 12-14.) will be provided by the Contractor. As corrective action is required to be completed within 5 years from CAP implementation, the submitted timetable shall not exceed 5 years in any case. The timetable shall itemize when the Contractor expects to meet the FPP removal, 60%, 90%, and 100% interim payment milestones. During corrective action implementation, this timetable may be adjusted (as approved in writing by the Agency) if circumstances beyond the control of the Contractor arise. If the Contractor fails to meet the interim goals in the proposed time frames, a remedy will be sought through the procedures outlined in Solicitation Item III.A.5.

   The Agency will review the CAP and initiate a public notice period for a maximum of 30 days. The names and addresses of the owners of all impacted properties and all properties located adjacent to the impacted properties are provided in the Appendix. The Contractor may be required to attend and provide input at one or more public meetings upon request by the Agency. Any CAP amendments and modifications resulting from the public notice must be submitted within 15 days of notification by the Agency. The CAP and any amendments or modifications must be sealed by a qualified Professional Geologist or Engineer registered in the State of South Carolina. The UST Owner/Operator and any other affected property owners will be consulted and will approve the location of the corrective action system. Any aboveground part of the system that is to remain on-site for longer than 30 contiguous days must be secured within a fenced area or building.

3. PERMIT APPLICATIONS: The Contractor must complete and submit all applications for permits (injection, NPDES, BAQC modeling form, thermal treatment, construction, etc.) with the CAP. All submitted applications must comply with the requirements of the respective permitting program. Any required permit changes or corrections will be submitted within 15 days of notification by the Agency.

4. INITIAL MONITORING REPORT: Prior to Corrective Action Plan implementation, the Contractor must submit an Initial Monitoring Report to the Agency documenting CoC

concentrations, FPP thicknesses, and potentiometric conditions in all wells and sampling points listed in the Appendix. The report will be due **within 45 days** after QAPP Contractor Addendum or Site-Specific Work Plan approval. The report should include color photographs with date stamp of the facility/site and surrounding properties to provide documentation of the condition of the facility/site prior to implementation of any corrective action activities. Copies of the Initial Monitoring Report must be distributed in accordance with Solicitation Item III.A.8.

Naturally occurring conditions may cause FPP thicknesses and/or CoC concentrations to increase or decrease. For the purpose of this solicitation, the total FPP thickness or CoC concentration for all wells and sampling points listed in the Appendix may reasonably increase up to 150% or decrease as much as 50%. If the total FPP thickness or CoC concentration in the wells and sampling points listed in the Appendix increases more than 150% percent based on initial gauging and sampling, or if measurable (> .01') FPP that has not been previously documented in any report is detected during the initial sampling event, the Contractor may request in writing that financial approval be cancelled. **If any of these conditions is identified during initial sampling, the Contractor will notify the Agency within 2 days of identification and will submit written documentation within 5 days of notification.** Financial approval will be cancelled and the Contractor will be reimbursed based on the following rate schedule:

Subcontract Costs*	Invoice + 12%
Personnel mobilization	$423.00
Groundwater sample collection- purge	$60.00 per well
Groundwater sample collection- no purge	$28.00 per well
Field blank	$24.60
Gauging FPP	$7.00 per well
Contaminated water disposal	$0.56 per gallon
FPP disposal	$0.50 per gallon
CAP preparation and associated costs	$6,000.00
QAPP Contractor Addendum preparation	$250.00
Site-Specific Work Plan preparation	$150.00

* Includes laboratory, drilling, electrical, etc.

If the total FPP thickness or CoC concentration in the wells and sampling points listed in the Appendix decreases more than 50% based on initial gauging and sampling, the Agency may cancel financial approval. The Contractor will be notified of the cancellation by certified letter and must submit an invoice for the appropriate items listed in the rate schedule within 20 days from receipt of the letter. If financial approval is cancelled prior to the Corrective Action Plan Implementation Date due to any of the conditions described in this Solicitation Item, final payment will not exceed 40% of the Corrective Action Cost under any circumstances as no FPP removal or CoC reduction will have been accomplished by implementation of corrective action. If the CAP has been implemented and physical treatment activities performed, the Contractor will be required to complete the corrective action unless conditions described in Solicitation Item III.A.10. are encountered.

5. CORRECTIVE ACTION PLAN IMPLEMENTATION: After the CAP, QAPP Contractor

Addendum or Site-Specific Work Plan, and all permit applications are reviewed and approved in accordance with QAPP Revision 2.0 and R.61-92, Section 280.66, the Agency will issue a Notice to Proceed with CAP implementation. The Contractor will implement the CAP within 30 days of receipt of the Notice to Proceed and any required permit to construct. A penalty of $100 per day will be assessed for each calendar day late if the CAP is not implemented in 30 days unless the Contractor obtains written approval from the Agency regarding a change in the implementation schedule. Any assessed penalty amounts will be deducted from the initial payment. If any problem with CAP implementation occurs, the Contractor will notify the Agency within 24 hours of problem identification and will submit written documentation within 5 days of notification. Disruption to the normal business at the site will be kept to a minimum. Any modification, relocation, disturbance, or destruction of physical structures or features as a result of CAP implementation must be approved in writing by the affected property owner prior to CAP implementation. Upon completion of any required construction, the Agency will inspect the corrective action system and issue a permit to operate. The Contractor will, at all times, keep the site free from waste materials and rubbish related to corrective action and maintain the site in a neat and workmanlike condition for the duration of the corrective action. All contaminated soil and construction debris, contaminated water, and FPP generated on-site will be removed from the site promptly. Manifests documenting the proper disposal of contaminated soil and construction debris, contaminated water, and FPP must be included in the appropriate report. The Contractor will repair and/or restore the site/facility to the condition that existed prior to CAP implementation and as documented by the photographs included in the Initial Monitoring Report in accordance with IV.B.4. Any deviation in returning the site/facility to the condition that existed prior to CAP implementation must be documented in writing by the Contractor and signed by the Owner/Operator and property owner.

Implementation of the CAP is not authorized until the Contractor receives a Notice to Proceed from the Agency. If unauthorized implementation occurs, the Agency will not reimburse related costs incurred by the Contractor from the SUPERB Account, and the Corrective Action Cost will be reduced by the amount of the incurred costs. If the Agency agrees with early implementation to better protect human health in an emergency and provides approval in writing, early implementation without any reduction to the Corrective Action Cost will be authorized.

A Corrective Action Plan Implementation Report will be due 60 days from the Notice to Proceed and shall include a description of work sufficient to document CAP implementation activities and the associated dates of work.

6. PROPERTY ACCESS: The Contractor will secure access to the site and adjacent properties to gauge and sample wells and sampling points, and to install any corrective action components, as required. The Contractor will be responsible for corrective action components installed on adjacent properties. Costs to repair or replace components of the corrective action system damaged due to the actions of adjacent property owners cannot be paid by the SUPERB Account.

7. START-UP: The Contractor will initiate corrective action within 15 days of receipt of a permit to operate, if required. Corrective action as defined in the CAP will begin upon start-up.

NOTE: The application of corrective action technologies or natural fluctuations in the water table can mobilize FPP and cause possible appearance of FPP and/or elevated CoC concentrations in non-SSTL wells and sampling points.

8. REPORTING: The Contractor must complete and submit a Corrective Action Plan (CAP) Implementation Report within 60 days of the Notice to Proceed. The Contractor must also complete and submit a Corrective Action System Evaluation (CASE) report on a semi-annual schedule. The CAP Implementation Report and CASE reports will be distributed in accordance with Solicitation Item III.A.8. The first CASE report is due within 90 days of the CAP Implementation Report. **CASE reports must be submitted regardless of the status of corrective action activities.**

   All wells and sampling points listed in the Appendix will be sampled on a quarterly schedule (see Solicitation Item IV.B. 9 for sampling details) following submittal of the CAP Implementation Report. The Contractor must submit a written request for a change in the protocol to the Agency. **Approval for any reduction in the number of wells and sampling points to be sampled, or for any lengthening of the reporting interval, is at the sole discretion of the Agency.**

   CASE reports must include, at a minimum, all items stipulated in the Documents and Records section and Active Site Rehabilitation Procedures section of QAPP Revision 2.0. CASE reports must also include any additional data required by permits (e.g., air analyses, wastewater effluent analyses, etc.). The Contractor will be provided with the proper report forms and reporting format prior to CAP Implementation. The Agency will notify the Contractor regarding any revisions to the forms or format 60 days prior to the due date for the next CASE report.

9. SAMPLING: The Contractor must collect water samples from all wells and sampling points listed in the Appendix on a quarterly schedule. **Do not sample wells and sampling points containing measurable (>0.01') FPP.** If measurable FPP is present, the thickness of product and depth to groundwater must be recorded to the nearest 0.01'. The sampling will be conducted in accordance with applicable portions of QAPP Revision 2.0. Additional samples (air, groundwater, effluent, soil) required by permits must be collected in accordance with established QA/QC protocol and submitted to an SC-certified laboratory for analysis. The samples will be analyzed for parameters stipulated in the permits. Sampling and analytical data for each sample (e.g., field sampling logs, chain of custody forms, certificates of analysis, lab certification number) will be included in the CASE report.

   The Contractor must submit a written request to the Agency for a change in the sampling protocol. Approval for any reduction in the number of wells and sampling points to be sampled is at the sole discretion of the Agency. The Contractor may choose to conduct sampling more frequently in order to document that a reduction milestone has been achieved.

10. DISPOSAL: The Contractor must properly dispose of all contaminated water, contaminated soil, and FPP generated during corrective action. The Owner/Operator of the UST facility will be considered the generator. In the case of an orphan site, the Contractor will be considered the generator. Treatment and disposal must be conducted at an SCDHEC-approved facility, and

must be documented in the CASE reports.

11. QUALITY ASSURANCE & VERIFICATION: Once sampling data indicate 100% CoC concentration reduction, the Contractor must completely suspend corrective action and provide notification to the Agency. After 30 days, the Contractor will sample all wells and sampling points listed in the Appendix to verify that the final (100%) CoC concentration reduction goal has been achieved and maintained. If the goal is maintained, the date of the 30-day sampling event will be considered the start of the two-quarter, post-corrective action verification period. During the verification period, the Contractor will conduct quarterly sampling of all wells and sampling points listed in the Appendix and all verification wells. **Do not sample wells and sampling points containing measurable (>0.01') FPP.** If measurable FPP is present, the thickness of product and depth to groundwater must be recorded to the nearest 0.01'. The samples should be analyzed for the parameters listed in the Appendix, and for dissolved oxygen, ferrous iron, methane, nitrate, and sulfate using the analytical methods and reporting limits detailed in the QAPP.

    If sampling results show that the final (100%) CoC concentration reduction goal has not been maintained, and/or CoC concentrations exceed SSTLs in any verification well, corrective action must be resumed. The Agency may require the Contractor to propose a revised corrective action strategy and timetable to achieve and maintain the goal. The strategy may require modification of the existing corrective action system. The post-corrective action period will be suspended and corrective action will continue until the final (100%) CoC concentration reduction goal is again achieved and maintained for a period of 30 days, and CoC concentrations in the verification well(s) remain below SSTLs for a period of 30 days. Once again, the Contractor will completely suspend corrective action and a new post-corrective action verification period will begin. The aforementioned cycle of activity must be repeated until CoC concentrations remain at or below SSTLs in all wells and sampling points listed in the Appendix and in all verification wells for 2 consecutive quarters.

    The Agency may require installation of 6 verification well(s) during the post-corrective action verification period at designated locations and depths. Costs for the verification wells will be considered part of the Corrective Action Cost. SSTLs for the verification wells will be provided by the Agency.

    The Agency will collect split samples from wells and sampling points in the area of concern to verify achievement of the second (90%) interim CoC concentration reduction goal, and may collect split samples to verify achievement of the first (60%) interim CoC reduction goal and to confirm the start of the two-quarter, post-corrective action verification period. Split samples will also be collected at the end of the two-quarter, post-corrective action verification period to confirm that corrective action goals have been maintained. In addition to the split samples, the Agency may provide up to three standards or prepared blanks for the Contractor's laboratory to analyze. Analytical data sets from the Contractor's laboratory and the Agency's laboratory will be compared. In the event of substantial variance (more than 15%) between the sets, a second split sampling event may be conducted with the Contractor. If the variance persists, all data sets and associated quality assurance/quality control data will be provided to Laboratory Certification to determine the cause of the variance. The Director of the Assessment and

Corrective Action Division, UST Management Division, will solicit input from Laboratory Certification, the UST Section Manager, the UST Project Manager, and the Contractor, and render a final decision as to which data set will be used for verification. The Contractor will be provided a written record of the decision.

If the Contractor anticipates that split sampling is warranted, the Agency must be allowed at least 2 weeks to schedule a mutually agreeable time for the split sampling event. Costs for transportation and analysis of split or duplicate samples collected by the Agency will be paid by the Agency.

12. DEMOBILIZATION: The Contractor will disassemble and remove the corrective action system and associated components including utilities from the site within 60 days of notification by the Agency that the final CoC concentration reduction goal has been achieved and maintained for 2 consecutive quarters. Disruption to the UST Owner/Operator's or property owner's normal business will be kept to a minimum.

13. SITE RESTORATION: The Contractor must remove or properly abandon all assessment and corrective action components (piping, monitoring wells, injection and/or extraction wells, trenches, etc.) within 60 days of notification by the Agency that the final CoC concentration reduction goal has been achieved and maintained for 2 consecutive quarters. Abandonment will be in accordance with the South Carolina Well Standards and Regulations R. 61-71, the UST Management Division QAPP Revision 2.0, and accepted industry standards for abandonment of trenches and piping/utility runs. Disruption to the Owner/Operator's or property owner's business must be kept to a minimum. The Contractor must provide the Agency with documentation of the abandonment and disposal of any remaining contaminated soil, contaminated groundwater, and FPP. **The Contractor will restore the site and adjacent properties to the condition that existed prior to assessment and corrective action (e.g., repaving, reseeding, etc.) as documented by the photographs included in the Initial Monitoring Report or other written documentation detailing a variance from the conditions documented by the photographs. Neither the Agency nor the SUPERB Account will be liable for any damages caused by the Contractor. As required by Section IV.A.4c of the SUPERB Site Rehabilitation and Fund Access Regulations R.61-98, the Contractor shall be required to indemnify the property owner, UST Owner/Operator and the State of South Carolina from and against all claims, damages, losses and expenses arising out of or resulting from activity conducted by the Contractor, its agents, employees or subcontractors.**

14. COMPLETION NOTICE: Written notice must be provided to the Agency at least 2 weeks prior to completion of site restoration. This will allow the Agency and the Contractor time to jointly inspect the site and adjacent properties, and compile a list of tasks to be finished. Task items may include, but are not limited to, well abandonment, pavement repair, debris removal, etc. **Site restoration will be complete once all the tasks are finished, the site passes a final inspection by the Agency, and the Agency issues written notice that the corrective action is complete.**

Appendix

UST # 06443, Mine Street Mart
McCormick County

Distribution List for Plans and Reports

Responsible Party:

Crown Central LLC
PO Box 1168
Baltimore, MD 21203-11668

Affected Property Owners:*

Fast Point Food Stores, Inc 201 North Mine Street McCormick, SC 29835	Tax Map 126-05-12-001 (site)
Ansel D. Brewer PO Box 1746 McCormick, SC 29835	Tax Map 126-05-12-037
Oscar & Shirley New PO Box 121 McCormick, SC 29835	Tax Map 126-05-12-003
The Bowick Agency 208 Hatton Court Lexington, SC 29072	Tax Map 126-05-12-005
Abbeville and McCormick County Habitat for Humanity PO Box 238 McCormick, SC 29835	Tax Map 126-05-11-001
McCormick County Health Center RT 2 Box 84AAA McCormick, SC 29835	Tax Map 126-05-01-010 & 126-05-01-008
Gerald and Kathryn West 906 Garrison Street McCormick, SC 29835	Tax Map 126-05-01-012
McCormick County Historical Commission RT 1 Box 2 McCormick, SC 29835	Tax Map 126-05-01-011 & 126-05-01-013
Palmetto Pro Properties LLC PO Box 4539 Batesburg-Leesville, SC 29070	Tax Map 126-05-12-042
David Pollow 5676 Walnut Grove Place Memphis, TN 38120	Tax Map 126-05-01-039

*Property owners are subject to change.

Table 1: Analytical Parameters

Analyte	Analytical Method*
BTEX	8260B
Naphthalene	8260B
MTBE	8260B
1,2 DCA	8260B
Oxygenates + Ethanol	8260B
EDB	8011

* See Programmatic QAPP for Reporting Limits.

The analyses listed in Table 1 are required for quarterly sampling and for verification sampling.

Table 2: Natural Attenuation Parameters

Analyte	Analytical Method*
Dissolved Oxygen	SM4500-O G
Ferrous Iron	SM3500-Fe D
Methane	Kerr Method
Nitrate	9056/9210
Sulfate	9038/9056

* See Programmatic QAPP for Reporting Limits.

The analyses listed in Table 2 are required for verification sampling.

Verification Wells

Six verification wells may be installed during the post-corrective action monitoring period at locations and depths designated by the UST Management Division. Costs for the well installation are considered part of the approved Corrective Action Cost. The Division will calculate SSTLs for the verification wells and provide the data to the Contractor in writing. During verification, all wells must be sampled for the analytical parameters listed above in Table 1 as well as the natural attenuation parameters listed in Table 2.

UST # 06443, Mine Street Mart
McCormick County

Table 3: Current CoC Concentrations in Groundwater

CoC concentrations in micrograms per liter (µg/l) based on the November 13, 2014 sampling and gauging:

Well	Free Product Thickness	Benzene	Toluene	Ethyl-benzene	Xylene	Naphthalene	MtBE	EDB	1,2 DCA	TAA	DIPE	TBA
MW-1	1.00 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-2	2.10 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-4		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-4R		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-5		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-6		7,710	559	330	1,260	749	19,900	<0.0063	<58.1	30,000	537	2,120
MW-7B		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-8		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-8R		NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-9B		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	70.4	<0.236	<0.290
MW-10		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-10R		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-11		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-12		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-12R		508	<0.122	<0.109	1.73	39.7	3.74	<0.0063	<0.116	894	17.9	22.1
MW-13R		323	3,670	1,750	11,100	801	60.3	NA	<5.81	1,380	13.8	<14.5
MW-14B	0.01 Feet	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-15		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-16		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-18R		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-19R		<0.111	<0.122	<0.109	<0.179	<0.176	66.3	<0.0063	<0.116	<1.01	9.63	<0.290
MW-20	0.29 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-20R	0.23 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-21		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-22		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-22D		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-24		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-26		412	3,060	1,650	9,880	577	<1.93	<0.0063	<2.9	<1.01	<0.236	<0.290
MW-27		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
PW-28		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-29		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-30		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
PW-31		5,690	9,750	1,790	6,320	636	618	3.50	<500	10,300	117	36.4
MW-32	0.81 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-33		DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-34		<0.111	<0.122	<0.109	<0.179	<0.176	19.7	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-34D		<0.111	<0.122	<0.109	<0.179	<0.176	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290
MW-35		21,800	42,300	3,430	17,500	3,180	<38.5	6.19	<58.1	17,700	<118	<154
MW-36	0.13 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-37		<0.555	<0.609	<0.545	<0.894	<0.880	314	<0.0063	<0.581	56.4	29.0	<1.45
MW-38		4,000	2,810	1,910	6,310	491	268	<0.0063	<5.81	4,460	43.7	86.6
MW-39	0.21 Feet	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP	FP
MW-40		570	5,590	2,240	8,520	881	115	<0.0063	<5.81	4,350	<11.8	<14.5
MW-41		21,000	35,500	3,210	15,000	1,500	2,300	13.7	171	27,400	409	858
MW-42		23.6	<0.609	<0.545	<0.894	26.6	410	<0.0063	10.4	2,090	58.7	96.8
MW-43		<0.111	<0.122	8.62	14.9	8.13	<0.077	<0.0063	<0.116	61.5	<0.236	<0.290
MW-44		<0.111	<0.122	<0.109	<0.179	6.95	<0.077	<0.0063	<0.116	<1.01	<0.236	<0.290

NOTE: CoC concentrations may vary due to seasonal fluctuations in the groundwater.
NOTE: The CoC concentrations for the monitoring wells with free product are the solubility limits of gasoline constituents
NOTE: After free product has been removed, all wells that contained free product shall be sampled. The results from this sampling event shall be used as a baseline against which to measure the percent dissolved reduction.

UST # 06443, Mine Street Mart
McCormick County

Table 4: Site-Specific Target Levels

Site-specific target levels (SSTLs) for interim payment under this solicitation in parts per billion (µg/l).

Well	Benzene	Toluene	Ethylbenzene	Xylene	Naph.	MtBE	EDB	1,2 DCA	TBA	TAA	DIPE
MW-1	3,286	26,540***	3,700***	21,680***	6,700***	106	1.33	18	369,681	755,184	2,670,000***
MW-2	2,477	26,540***	3,700***	21,680***	6,700***	102	1.15	17	290,006	531,918	2,670,000***
MW-6	3,286	559*	330*	1,260*	749*	106	.0063**	18	2,120*	30,000*	537*
MW-12R	508*	0.122**	0.109**	1.73*	39.7*	3.74*	.0063**	.116**	22.1*	894*	17.9*
MW-13R	323*	3,670*	1,750*	11,100*	801*	60.3*	.0063**	5.81**	14.5**	1,380*	13.8*
MW-14B	2,477	26,540***	3,700***	21,680***	6,700***	102	1.15	17	290,006	531,918	2,670,000***
MW-20	147	26,540***	3,700***	21,680***	1,381	67	.28	10	25,659	16,025	588,993
MW-20R	147	26,540***	3,700***	21,680***	1,381	67	.28	10	25,659	16,025	588,993
MW-26	63	3,060*	1,650*	9,880*	506	1.93**	.0063**	8	67,662	65,020	2,670,000***
MW-32	455	26,540***	3,700***	21,680***	5,258	79	.49	12	67,662	65,020	2,670,000***
MW-35	10,178	26,540***	3,430*	17,500*	3,180*	38.5**	2.36	58.1**	154**	17,700*	118**
MW-36	5,782	26,540***	3,700***	21,680***	6,700***	116	1.77	21	600,821	1,522,470	2,670,000***
MW-37	.555**	.609**	.545**	.894**	.880**	111	.0063**	.581**	1.45**	56.4*	29.0*
MW-38	1,408	2,810*	1,910*	6,310*	491*	94	.0063**	5.81**	86.6*	4,460*	43.7*
MW-39	1,124	26,540***	3,700***	21,680***	6,700***	90	.77	15	147,014	199,428	2,670,000***
MW-40	259	5,590*	2,240*	8,520*	881*	72	.0063**	5.81**	14.5**	4,350*	11.8**
MW-41	259	26,540***	3,210*	15,000*	1,500*	72	.37	171*	858*	27,000*	409*
MW-42	23.6*	.609**	.545**	.894**	26.6*	61	.0063**	10.4*	96.8*	2,090*	58.7*
Total	32,203	281,090	44,121	243,014	49,695	1,349	10	404	1,887,538	3,790,938	19,869,225

* Laboratory analysis is less than calculated SSTL. SSTL is set equal to laboratory analysis.

** Laboratory analysis is below detection limit. SSTL is set equal to detection limit

*** SSTL set to effective solubility in free product wells; however, new SSTL's will be established once free product has been removed.

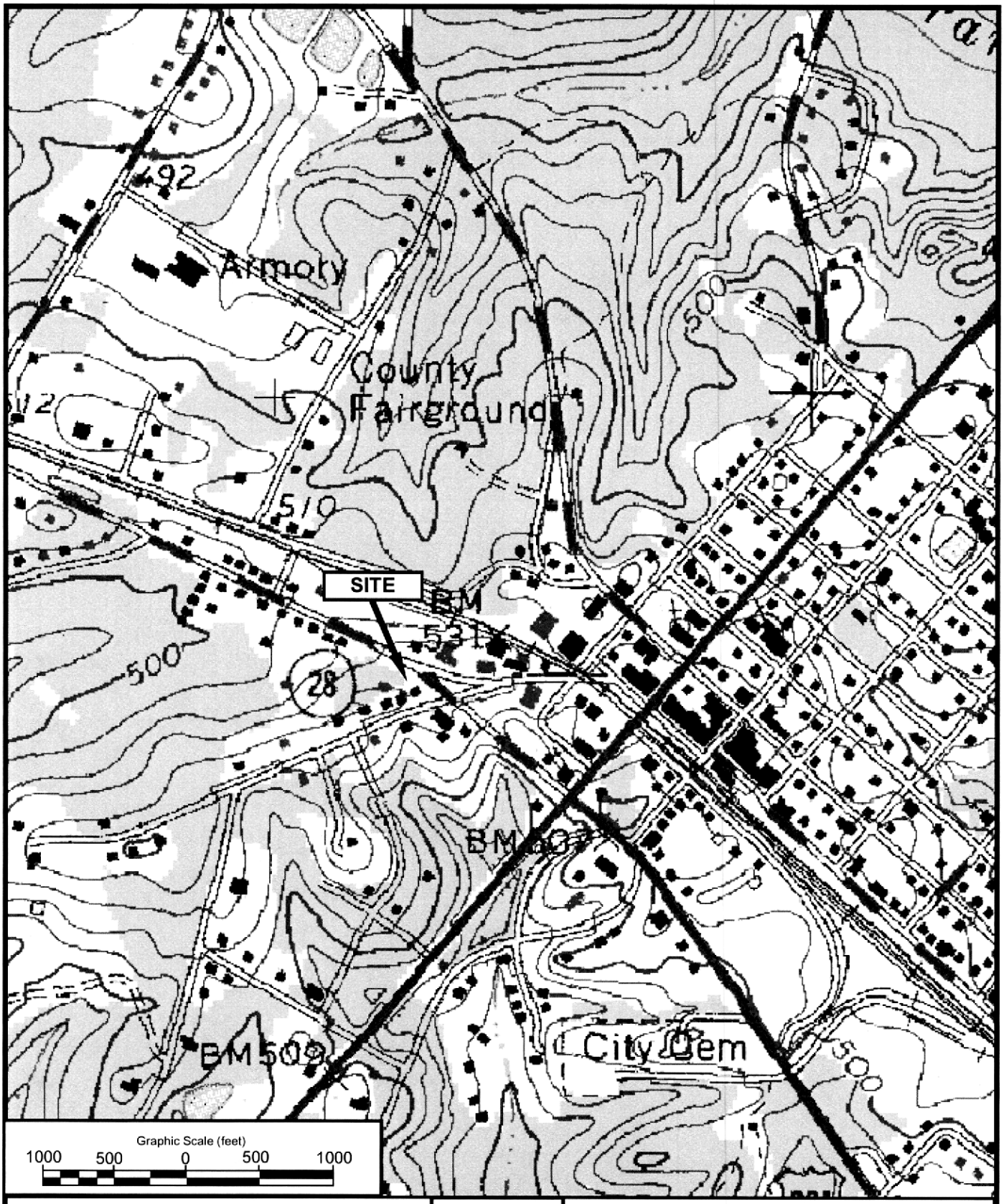
UST # 06443, Mine Street Mart
McCormick County

Site-specific target levels (SSTLs) for interim payment under this solicitation.

Monitoring Well	Free Product Thickness (feet)	SSTL
MW-1	1.00'	<0.01
MW-2	2.10'	<0.01
MW-14B	0.01'	<0.01
MW-20	0.29'	<0.01
MW-20R	0.23'	<0.01
MW-32	0.81'	<0.01
MW-36	0.13'	<0.01
MW-39	0.21'	<0.01
Total Initial Thickness	4.78'	
Total SSTL Thickness	0.08'	
Total Initial Thickness Above SSTL	4.70'	

List of Adjacent Facilities

No adjacent facilities located.



USGS TOPOGRAPHIC QUADRANGLE MAP
MCCORMICK, SOUTH CAROLINA

DATE: 1987

PROJECT NO. 73058013

N

Terracon

SITE LOCATION MAP
ONE STOP (FORMER SC-576)
MCCORMICK, SOUTH CAROLINA
UST SITE NO. 06443

FIGURE 1

RAILROAD AVE
MCCRACKEN ST
MAIN ST
FIFTH AVE
CEDAR ST
SUNSET DR
PINE VIEW DR
AUGUSTA STREET EXT
VIRGINIA ST
28
378
100 ft

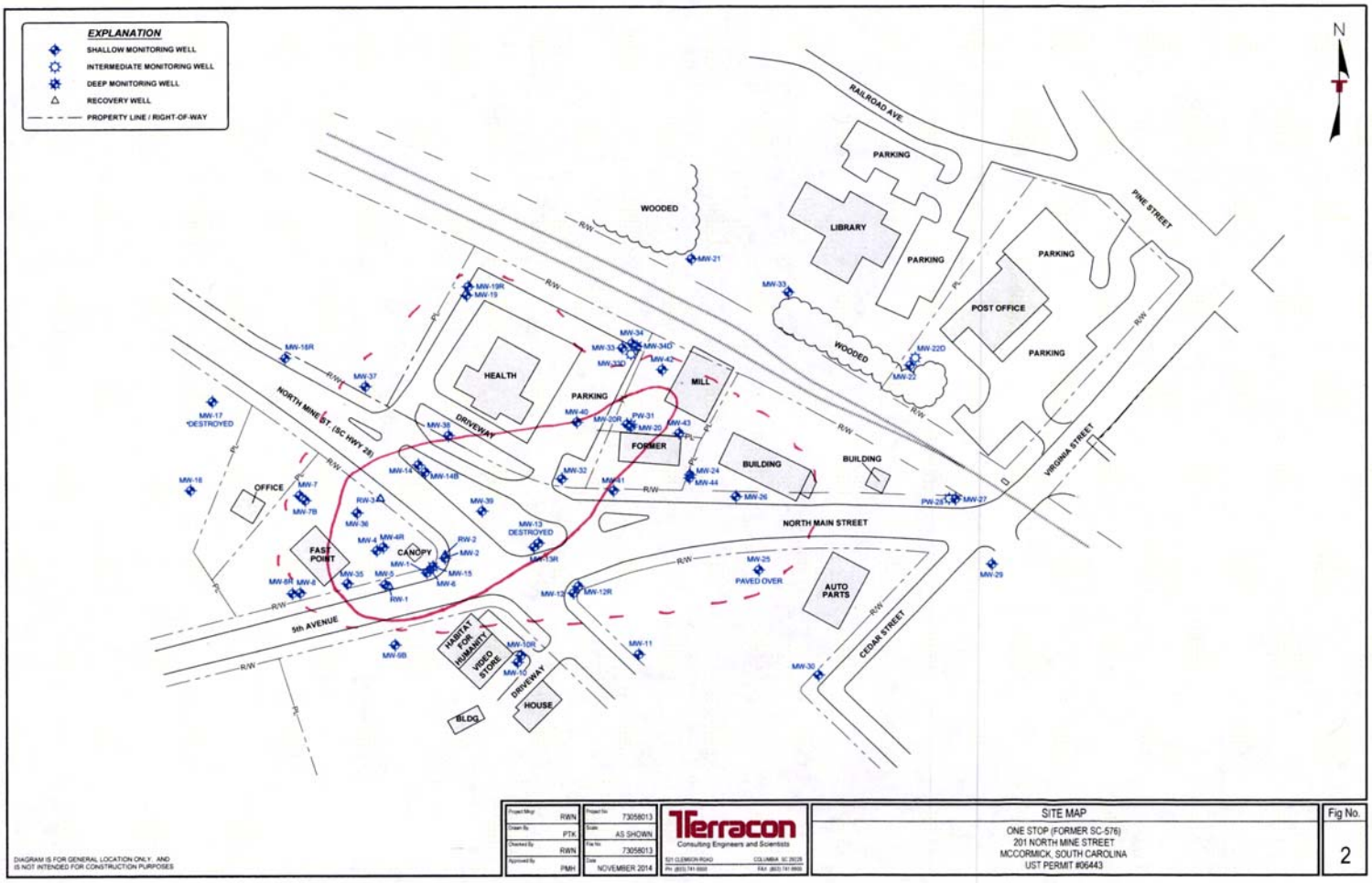


DIAGRAM IS FOR GENERAL LOCATION ONLY. AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr	RWN
Drawn By	PTK
Checked By	RWN
Approved By	PMH
Project No	7305803
Scale	AS SHOWN
File No	7305803
Date	NOVEMBER 2014

Terracon
Consulting Engineers and Scientists
521 CLEMSON ROAD COLUMBIA, SC 29229
Ph: (803) 741-9000 FAX: (803) 741-9900

SITE MAP

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 2

— = Area Free Product Concern

- - - = Area dissolved CoC Concern

NOTES:
1) GROUND WATER SAMPLES COLLECTED ON NOVEMBER 13-15, 2014.
2) ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (ug/L)
3) CONCENTRATIONS IN BOLD EXCEED RBSLs OR ALs
4) J - INDICATES ESTIMATED VALUE

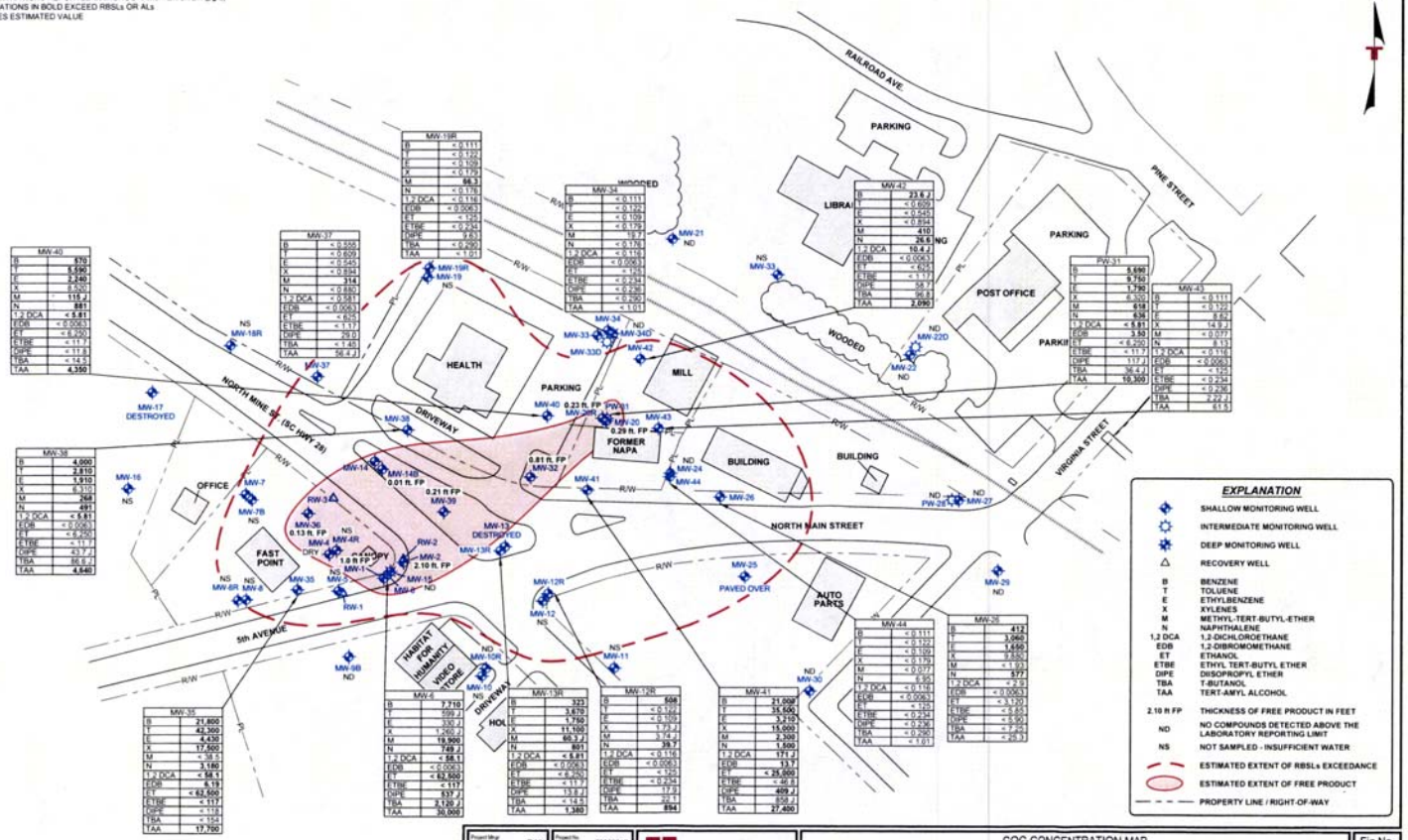


DIAGRAM IS FOR GENERAL LOCATION ONLY. AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr: RWN Drawn By: PTK Checked By: RWN Approved By: PMH	Project No.: 73058013 Scale: AS SHOWN File No.: 73058013 Date: DECEMBER 2014	Terracon Consulting Engineers and Scientists 121 CLEMSON ROAD COLUMBIA, SC 29229 PH: (803) 741-9000 FAX: (803) 741-9000	COC CONCENTRATION MAP ONE STOP (FORMER SC-576) 201 NORTH MINE STREET MCCORMICK, SOUTH CAROLINA UST PERMIT #06443	Fig No. 4

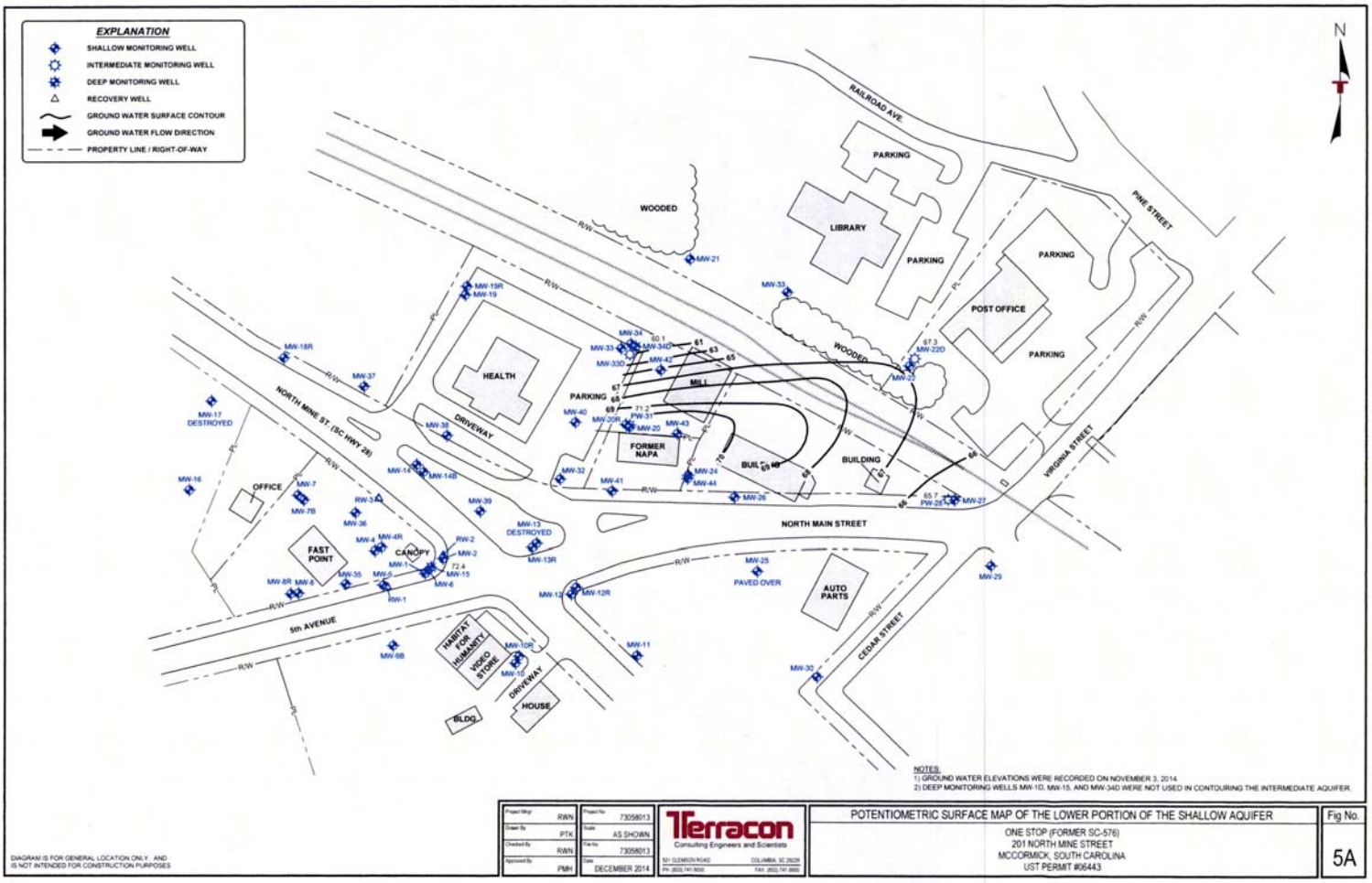


DIAGRAM IS FOR GENERAL LOCATION ONLY AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Mngr	RWN
Drawn By	PTK
Checked By	RWN
Approved By	PMH
Project No	7305B013
Scale	AS SHOWN
File No	7305B013
Date	DECEMBER 2014

Terracon
Consulting Engineers and Scientists
321 CLEMSON ROAD COLUMBIA, SC 29229
PH (803) 741-9000 FAX (803) 741-9665

POTENTIOMETRIC SURFACE MAP OF THE LOWER PORTION OF THE SHALLOW AQUIFER

ONE STOP (FORMER SC-576)
201 NORTH MINE STREET
MCCORMICK, SOUTH CAROLINA
UST PERMIT #06443

Fig No. 5A

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-1	10/11/96	20-30	100.03	22.20	23.23	**1.03**	77.60
	9/19/01			29.40	30.01	**0.61**	70.50
	9/18/02			DRY			
	5/28/03			19.34	23.15	**3.81**	79.85
	12/20/04			28.37	29.57	**1.20**	71.40
	6/05/07			26.05	28.40	**2.35**	73.46
	6/17/08			NM	29.94	**> 3.0**	NC
	1/6/09			DRY			
	1/24/11			ND	18.92	ND	81.11
	11/3/14			27.50	28.5	**1.0**	71.53
MW-2	10/11/96	20.5 -30.5	99.31	20.75	23.28	**2.53**	78.00
	9/19/01			28.31	29.74	**1.43**	70.69
	9/18/02			DRY			
	5/28/03			17.50	23.39	**5.89**	80.51
	12/20/04			27.16	28.60	**1.44**	71.83
	6/05/07			25.20	27.18	**1.98**	73.67
	6/17/08			27.10	28.10	**1.00**	71.99
	1/6/09			DRY			
	1/24/11			30.34	30.44	**0.10**	68.95
	11/3/14			25.90	28	**2.10**	72.95
MW-4	10/11/96	21.5-31.5	101.51	23.45	24.29	**0.84**	77.88
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			DRY			
	11/3/14			DRY			

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-4R	9/18/02	20.5-30.5	101.56	DRY			
	5/28/03			19.51	20.84	**1.33**	81.75
	12/20/04			ND	29.95	ND	71.61
	6/05/07			27.40	29.49	**2.09**	73.70
	6/17/08			DRY			
	1/6/09			ND	29.85	ND	71.71
	1/24/11			ND	29.84	ND	71.72
	11/3/14			ND	29.88	ND	71.68
MW-5	10/11/96	15-30	102.16	21.89	24.08	**2.19**	79.79
	9/19/01			30.74	32.76	**2.02**	70.98
	9/18/02			DRY			
	5/28/03			21.77	22.60	**0.83**	80.20
	12/20/04			29.89	30.90	**1.01**	72.05
	6/05/07			28.03	29.01	**0.98**	73.91
	6/17/08			31.55	30.65	**0.90**	72.21
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	29.30	ND	72.86
MW-6	10/11/96	TD-58	100.45	ND	20.97	ND	79.48
	9/19/01			ND	29.12	ND	71.33
	9/18/02			ND	33.15	ND	67.30
	5/28/03			ND	20.27	ND	80.18
	12/20/04			ND	28.55	ND	71.90
	6/05/07			ND	26.59	ND	73.86
	6/17/08			ND	19.11	ND	81.34
	1/6/09			ND	33.33	ND	67.12
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.60	ND	72.85

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-7B	10/11/96	15-30	101.43	ND	23.83	ND	77.60
	9/19/01			ND	29.86	ND	71.57
	9/18/02			NM	NM	NM	NM
	5/28/03			ND	18.00	ND	83.43
	12/20/04			DRY			
	6/05/07			ND	28.71	ND	72.72
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	29.93	ND	71.50
MW-8	10/11/96	10-20	103.85	DRY			
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			NM	NM	NM	NM
MW-8R	9/18/02	25-40	103.89	ND	35.94	ND	67.95
	5/28/03			ND	22.97	ND	80.92
	12/20/04			ND	32.14	ND	71.75
	6/05/07			ND	29.58	ND	74.31
	6/17/08			ND	30.75	ND	73.14
	1/6/09			ND	36.24	ND	67.65
	1/24/11			NM	NM	NM	NM
	11/3/14			NM	NM	NM	NM

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-9B	10/11/96	15-30	98.99	ND	20.09	ND	78.90
	9/19/01			ND	28.32	ND	70.67
	9/18/02			DRY			
	5/28/03			ND	18.12	ND	80.87
	12/20/04			ND	26.73	ND	72.26
	6/05/07			ND	23.25	ND	75.74
	6/17/08			NM	26.65	ND	72.34
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.11	ND	72.88
MW-10	10/11/96	8-18	93.53	DRY			
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	14.05	ND	79.48
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	18.08	ND	75.45
MW-10R	6/6/07	24-39	93.31	ND	23.27	ND	70.04
	6/17/08			ND	24.18	ND	69.13
	1/6/09			ND	26.97	ND	66.34
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	25.20	ND	68.11

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-11	10/11/96	5-15	85.80	ND	11.69	ND	74.11
	9/19/01			DRY			
	9/18/02			DRY			
	5/28/03			ND	9.65	ND	76.15
	12/20/04			DRY			
	6/05/07			ND	15.18	ND	70.62
	6/17/08			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	15.03	ND	70.77
MW-12	10/11/96	8.5-23.5	94.95	ND	19.16	ND	75.79
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			DRY			
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	23.25	ND	71.70
MW-12R	9/18/02	30-45	95.36	ND	30.66	ND	64.70
	5/28/03			ND	17.96	ND	77.40
	12/20/04			ND	25.38	ND	69.98
	6/05/07			ND	24.29	ND	71.07
	6/17/08			ND	25.40	ND	69.96
	1/6/09			ND	29.09	ND	66.27
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	24.45	ND	70.91

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-13	10/11/96	9.5-25	98.25	20.29	20.70	**0.41**	77.87
	9/19/01			DRY			
	12/20/04			DRY			
	6/05/07			WELL DESTROYED			
MW-13R	9/18/02	29-44	98.33	ND	31.22	ND	67.11
	5/28/03			18.30	18.60	**0.30**	79.96
	12/20/04			26.56	26.76	**0.20**	71.73
	6/05/07			24.26	24.34	**0.08**	74.05
	6/17/08			ND	26.34	ND	71.99
	1/6/09			31.23	31.77	**0.54**	66.56
	1/24/11			29.00	29.01	**0.01**	69.33
	11/3/14			ND	25.83	ND	72.50
MW-14B	10/11/96	20-40	100.74	ND	23.08	ND	77.66
	9/19/01			ND	32.54	ND	68.20
	9/18/02			35.25	35.88	**0.63**	65.35
	5/28/03			18.11	18.23	**0.12**	82.63
	12/20/04			30.26	30.69	**0.43**	70.39
	6/05/07			27.69	27.71	**0.02**	73.05
	6/17/08			ND	30.80	ND	69.94
	1/6/09			35.70	35.87	**0.17**	64.87
	1/24/11			33.40	33.63	**0.23**	67.29
	11/3/14			29.50	29.51	**0.01**	71.24

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-15	10/11/96	125-130	100.08	ND	22.30	ND	77.78
	9/19/01			ND	29.12	ND	70.96
	9/18/02			ND	32.86	ND	67.22
	5/28/03			ND	20.18	ND	79.90
	12/20/04			ND	29.35	ND	70.73
	6/05/07			ND	26.50	ND	73.58
	6/17/08			ND	28.20	ND	71.88
	1/6/09			ND	33.03	ND	67.05
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.69	ND	72.39
MW-16	10/11/96	13-23.5	100.57	DRY			
	9/19/01			ND	22.47	ND	78.10
	9/18/02			DRY			
	5/28/03			ND	17.84	ND	82.73
	12/20/04			DRY			
	6/17/08			ND	22.85	ND	77.72
	1/6/09			ND	22.93	ND	77.64
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	22.46	ND	78.11
MW-17	10/11/96	13-23.5	96.79	ND	20.12	ND	76.67
	9/19/01	WELL DESTROYED					
MW-18	10/11/96	13-23.5	95.79	ND	18.93	ND	76.86
	9/19/01	WELL DESTROYED					

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-18R	5/29/03	18-33	98.75	ND	16.23	ND	82.52
	12/20/04			ND	30.31	ND	68.44
	6/05/07			ND	28.46	ND	70.29
	6/17/08			ND	30.55	ND	68.2
	1/6/09			DRY			
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	31.83	ND	66.92
MW-19	10/11/96	12-22.5.	94.61	ND	17.60	ND	77.01
	9/19/01			ND	21.61	ND	73.00
	12/20/04			DRY			
	6/17/08			WELL CASING BENT; BAILER OBSTRUCTED			
	1/6/09			WELL CASING BENT; BAILER OBSTRUCTED			
	1/24/11			WELL CASING BENT; BAILER OBSTRUCTED			
	11/3/14			WELL CASING BENT; BAILER OBSTRUCTED			
MW-19R	9/18/02	30-45	94.07	ND	32.40	ND	61.67
	5/28/03			ND	12.29	ND	81.78
	12/20/04			ND	26.14	ND	67.93
	6/05/07			ND	24.71	ND	69.36
	6/17/08			ND	26.96	ND	67.11
	1/6/09			ND	31.19	ND	62.88
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	28.26	ND	65.81

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-20	10/11/96	18-38.5	98.90	ND	23.94	ND	74.96
	9/19/01			DRY			
	12/20/04			29.39	30.21	**0.82**	69.33
	6/06/07			ND	28.75	ND	70.15
	6/17/08			29.80	30.53	**0.73**	67.80
	1/6/09			32.21	32.50	**0.29**	66.40
	1/24/11			30.64	30.69	**0.05**	68.17
	11/3/14			29.71	30.00	**0.29**	68.67
MW-20R	9/18/02	34.5-49.5	98.38	ND	35.10	ND	63.28
	5/28/03			ND	20.75	ND	77.63
	12/20/04			ND	29.24	ND	69.14
	6/06/07			ND	28.39	ND	69.99
	6/17/08			29.69	29.94	**0.25**	68.25
	1/6/09			31.78	31.80	**0.02**	66.56
	1/24/11			ND	30.19	ND	68.19
	11/3/14			29.42	29.65	**0.23**	68.55
MW-21	8/13/96	30.3 -40.3	97.54	ND	27.19	ND	70.35
	9/19/01			ND	33.71	ND	63.83
	9/18/02			ND	38.09	ND	59.45
	5/28/03			ND	20.53	ND	77.01
	12/20/04			ND	32.14	ND	65.40
	6/05/07			ND	30.61	ND	66.93
	6/17/08			ND	31.66	ND	65.88
	1/6/09			ND	34.50	ND	63.04
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	33.10	ND	64.44

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-22	8/13/96	32-42	100.87	ND	30.83	ND	70.04
	9/19/01			ND	36.06	ND	64.81
	9/18/02			ND	39.98	ND	60.89
	5/28/03			ND	26.97	ND	73.90
	12/20/04			NM	NM	NM	NM
	6/05/07			ND	33.00	ND	67.87
	6/17/08			ND	33.98	ND	66.89
	1/6/09			ND	33.50	ND	67.37
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	34.77	ND	66.10
MW-22D	6/6/07	52-57	98.44	ND	35.08	ND	63.36
	6/17/08			ND	31.42	ND	67.02
	1/6/09			ND	35.45	ND	62.99
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	31.13	ND	67.31
MW-24	10/11/96	35-40	97.17	ND	22.53	ND	74.64
	9/19/01			ND	28.20	ND	68.97
	9/18/02			ND	32.08	ND	65.09
	5/28/03			ND	22.24	ND	74.93
	12/20/04			ND	27.68	ND	69.49
	6/06/07			ND	26.15	ND	71.02
	6/17/08			ND	27.38	ND	69.79
	1/6/09			ND	30.61	ND	66.56
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.49	ND	70.68

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-25	10/11/96	15-30	94.97	ND	23.33	ND	71.64
	9/19/01			ND	29.10	ND	65.87
	9/18/02			ND	29.41	ND	65.56
	5/28/03			ND	21.45	ND	73.52
	12/20/04			ND	27.56	ND	67.41
	6/05/07			ND	26.39	ND	94.97
	6/17/08			ND	27.55	ND	67.42
	1/6/09			ND	29.18	ND	65.79
	1/24/11			NM	NM	NM	NM
	11/3/14			PAVED OVER			
MW-26	10/11/96	15-30	96.36	ND	23.42	ND	72.94
	9/19/01			ND	29.31	ND	67.05
	9/18/02			DRY			
	5/28/03			ND	22.02	ND	74.34
	12/20/04			ND	27.74	ND	68.62
	6/06/07			ND	26.74	ND	69.62
	6/17/08			ND	27.51	ND	68.85
	1/6/09			ND	29.98	ND	66.38
	1/24/11			ND	30.31	ND	66.05
	11/3/14			ND	26.15	ND	70.21
MW-27	12/20/04	25-40	93.34	ND	26.98	ND	66.36
	6/05/07			ND	25.85	ND	67.49
	6/17/08			ND	26.63	ND	66.71
	1/6/09			ND	28.27	ND	65.07
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.10	ND	66.24

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
PW-28	12/20/04	50-55	93.19	ND	28.31	ND	64.88
	6/05/07			ND	26.94	ND	66.25
	6/17/08			ND	27.00	ND	66.19
	1/6/09			ND	30.67	ND	62.52
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	27.54	ND	65.65
MW-29	12/20/04	23-38	92.11	ND	26.62	ND	65.49
	6/05/07			ND	25.30	NM	66.81
	6/17/08			ND	26.38	ND	65.73
	1/6/09			ND	27.74	ND	64.37
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.83	ND	65.28
MW-30	12/20/04	11-26	84.36	ND	19.65	ND	64.71
	6/05/07			ND	19.31	ND	65.05
	6/17/08			ND	20.18	ND	64.18
	1/6/09			ND	20.09	ND	64.27
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	21.52	ND	62.84
PW-31	12/20/04	50-55	98.13	ND	29.35	ND	68.78
	6/06/07			ND	28.50	ND	69.63
	6/17/08			ND	29.63	ND	68.50
	1/6/09			ND	31.83	ND	66.30
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	26.90	ND	71.23

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
MW-32	6/6/07	20-35	97.73	ND	24.35	ND	73.38
	6/17/08			24.97	27.22	**2.25**	68.76
	1/6/09			31.11	33.11	**2.00**	64.62
	1/24/11			30.41	30.96	**0.55**	66.34
	11/3/14			25.64	26.45	**0.81**	70.65
MW-33	6/6/07	23-38	94.62	ND	25.81	ND	68.81
	6/17/08			ND	21.29	ND	73.33
	1/6/09			ND	21.39	ND	73.23
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	20.93	ND	73.69
MW-34	1/11/10	19-34	95.61	NM	NM	NM	NM
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	30.48	ND	65.13
MW-34D	1/11/10	55-60	95.71	ND	26.10	ND	69.61
	1/24/11			NM	NM	NM	NM
	11/3/14			ND	35.66	ND	60.05
MW-35	1/24/11	25-40	102.67	ND	32.99	ND	69.68
	11/3/14			ND	29.53	ND	73.14
MW-36	1/24/11	25-40	101.03	34.29	34.54	**0.25**	66.30
	11/3/14			29.82	29.95	**0.13**	70.98
MW-37	1/24/11	26-41	98.29	ND	33.40	ND	64.89
	11/3/14			ND	30.64	ND	67.65
MW-38	1/24/11	28-43	99.19	33.44	33.45	**0.01**	65.73
	11/3/14			ND	28.62	ND	70.57
MW-39	1/24/11	25-40	100.71	32.55	33.60	**1.05**	66.29
	11/3/14			28.65	28.86	**0.21**	71.85
MW-40	1/24/11	25-40	95.79	ND	28.08	ND	67.71
	11/3/14			ND	24.12	ND	71.67
MW-41	1/24/11	20-35	98.48	ND	29.58	ND	68.90

TABLE 2
HISTORICAL GROUND WATER ELEVATION DATA

One Stop (Former SC-576)
201 North Mine Street, McCormick
UST PERMIT NO. 06443
Terracon Project No. 73058013

WELL NUMBER	DATE MEASURED	SCREEN INTERVAL (ft bgs)	TOP OF CASING ELEVATION	DEPTH TO PRODUCT (ft btoc)	DEPTH TO GROUND WATER (ft btoc)	PRODUCT THICKNESS (ft)	GROUND WATER ELEVATION
	11/3/14			ND	25.76	ND	72.72
MW-42	1/24/11	19-34	98.89	ND	26.67	ND	72.22
	11/3/14			ND	26.00	ND	72.89
MW-43	1/24/11	25-40	101.13	ND	27.88	ND	73.25
	11/3/14			ND	26.55	ND	74.58
MW-44	1/24/11	20-35	97.01	ND	28.79	ND	68.22
	11/3/14			ND	26.79	ND	70.22

Notes:

1) Ground Water elevation corrected for free product using the following formula:
   GW Elev. = TOC Elevation - [Depth to Water - (F.P Thickness * 0.78)], where gasoline has an assumed specific gravity of 0.78 g/cc.
2) ND - not detected
3) NA - data not available.
4) bgs - below ground surface
5) btoc - below top of casing

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	–	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-1	10/11/96	**1.03 ft FREE PRODUCT**							
	9/19/01	**0.61 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**3.81 ft FREE PRODUCT**							
	12/20/04	**1.20 ft FREE PRODUCT**							
	6/5/07	**2.35 ft FREE PRODUCT**							
	6/17/08	**> 3 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	**1.00 ft FREE PRODUCT**							
MW-2	10/11/96	**2.53 ft FREE PRODUCT**							
	9/19/01	**1.43 ft FREE PRODUCT**							
	9/18/02	DRY							
	5/28/03	**5.89 ft FREE PRODUCT**							
	12/20/04	**1.44 ft FREE PRODUCT**							
	6/5/07	**1.98 ft FREE PRODUCT**							
	6/17/08	**1.00 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	**2.10 ft FREE PRODUCT**							
MW-4	10/11/96	**0.84 ft FREE PRODUCT**							
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							
	11/3/14	DRY							

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Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	–	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-4R	9/18/02	DRY							
	5/28/03	**1.33 ft FREE PRODUCT**							
	12/20/04	NOT SAMPLED							
	6/5/07	**2.09 ft FREE PRODUCT**							
	6/17/08	DRY							
	1/8/09	**8,840**	**11,800**	651	7,220	**6,080**	**1,480**	NA	NA
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-5	5/28/03	**0.83 ft FREE PRODUCT**							
	12/20/04	**1.01 ft FREE PRODUCT**							
	6/5/07	**0.98 ft FREE PRODUCT**							
	6/17/08	**0.90 ft FREE PRODUCT**							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-6	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	**10,300**	165	BDL	1,460	**5,860**	**249**	NA	BDL
	9/18/02	**15,200**	684	291	2,278	**13,500**	**356**	NA	**1.5**
	5/28/03	**11,400**	213	136	1,641	**13,200**	**385**	NA	**1.8**
	12/21/04	**13,000**	300	320	1900	**15,000**	**400**	NA	**1.2**
	6/05/07	**13,500**	<200	<200	<600	**17,500**	**<1000**	**<1000**	<0.01
	6/19/08	**6,760**	< 100	< 100	< 300	**15,100**	**< 500**	**< 500**	NA
	1/7/09	**18,000**	291	293	535 J	**24,000**	**967 J**	NA	< 0.0035
	11/5/14	**7,710**	559 J	330 J	1,260 J	**19,900**	**749 J**	**< 58.1**	< 0.0063

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Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	–	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-7B	10/11/96	**35**	94	43	174	BDL	18	NA	BDL
	8/20/98	**31**	15	41	141	BDl	**41**	NA	BDL
	9/19/01	NOT SAMPLED							
	9/18/02	NOT SAMPLED							
	5/28/03	1.77	BDL	1.1	4.6	5.75	BDL	NA	BDL
	12/20/04	DRY							
	6/05/07	4.9	9.4	1.9	10.4	4.7	<5	<5	<0.01
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-8	10/11/96	DRY							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	06/05/07	DRY							
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	UNABLE TO ACCESS WELL							
MW-8R	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<1	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	UNABLE TO ACCESS WELL							

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Petroleum Compounds

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201 North Mine Street, McCormick, SC
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WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	–	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-9B	10/11/96	**45**	285	46	212	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	2.75	BDL	2.03	BDL	BDL	NA	BDL
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	**0.11**
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	4.2	12.6	2.03	9.39	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	DRY							
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-10	10/11/96	DRY							
	9/19/01	DRY							
	9/18/02	DRY							
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	DRY							
	6/06/07	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-10R	6/07/07	3.28	4.1	<1	3.6	<1	<5	<5	<0.010
	6/19/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

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GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-11	10/11/96	BDL	BDL	BDL	BDL	4.67	BDL	NA	BDL
	8/20/98	BDL	0.8	0.9	BDL	BDL	BDL	NA	BDL
	9/19/01	NOT SAMPLED							
	9/18/02	NOT SAMPLED							
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	NOT SAMPLED							
	6/17/08	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12	10/11/96	2.2	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	2.2	1	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	DRY							
	12/20/04	DRY							
	6/5/07	DRY							
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12R	9/18/02	**139**	BDL	BDL	BDL	1.3	11.1	NA	**0.18**
	5/28/03	**178**	BDL	BDL	1.7	BDL	19.2	NA	**0.14**
	12/20/04	**230**	BDL	BDL	BDL	BDL	21	NA	**1.1**
	6/06/07	**332**	<10	<10	<30	<10	**<50**	**<50**	<0.010
	6/18/08	**322**	< 5.00	< 5.00	< 15.0	< 5.00	**38.9**	**< 25.0**	NA
	1/7/09	**751**	< 0.378	< 0.326	< 0.917	< 0.385	**52.5**	NA	< 0.0035
	11/4/14	**508**	< 0.122	< 0.109	1.73 J	3.74 J	**39.7**	< 0.116	< 0.0063

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WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-13	10/11/96	**0.41 ft FREE PRODUCT**							
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL DESTROYED							
MW-13R	9/18/02	**5,010**	**18,600**	**1,990**	**12,540**	**973**	**456**	NA	**3.6**
	5/28/03	**0.30 ft FREE PRODUCT**							
	12/20/04	**0.20 ft FREE PRODUCT**							
	6/05/07	**0.08 ft FREE PRODUCT**							
	6/18/08	**12,100**	**5,120**	**2,370**	**11,400**	**1,450**	**1,250**	**<500**	NA
	1/7/09	**0.54 ft FREE PRODUCT**							
	11/4/14	**323**	**3,670**	**1,750**	**11,100**	**60.3 J**	**801**	**<5.81**	< 0.0063
MW-14B	10/11/96	**7,800**	**18,100**	**2,300**	**10,600**	BDL	BDL	NA	BDL
	8/20/98	**7,225**	**12,612**	**1,244**	6192	**158**	**403**	NA	**42.4**
	9/19/01	**5,740**	**16,500**	**2,420**	**12,470**	15.2	**1,040**	NA	**16.9**
	9/18/02	**0.63 ft FREE PRODUCT**							
	5/28/03	**0.12 ft FREE PRODUCT**							
	12/20/04	**0.43 ft FREE PRODUCT**							
	6/05/07	**2,130**	**19,700**	**4,080**	**22,400**	<100	**866**	**<500**	<0.010
	6/18/08	**3,730**	**24,700**	**4,780**	**19,400**	< 500	**3,360**	**< 2,500**	NA
	1/7/09	**0.17 ft FREE PRODUCT**							
	1/7/09	**0.01 ft FREE PRODUCT**							

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Petroleum Compounds

FORMER SC-576
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-15	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	3.3	BDL	BDL	BDL	6.9	2.1	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	6.54	BDL	NA	BDL
	12/21/04	2.2	BDL	BDL	BDL	12	BDL	NA	BDL
	6/05/07	**50.5**	10.7	2	11.5	**49.6**	<5	<5	<0.010
	6/19/08	**21.1**	3.45	5.07	12.8	31.1	6.34	< 5.00	NA
	1/8/09	**81.7**	< 0.076	< 0.065	< 0.183	**55.6**	2.24 J	NA	< 0.0035
	11/5/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-16	10/11/96	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/98	NA	NA	NA	NA	NA	NA	NA	NA
	9/19/01	BDL	BDL	BDL	BDL	1.71	BDL	NA	BDL
	9/18/02	NOT SAMPLED							
	5/28/03	BDL	7.05	3.81	23.5	1.85	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	NOT SAMPLED							
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/8/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	NA
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-17	10/11/96	BDL	BDL	BDL	BDL	1.71	BDL	NA	BDL
	6/05/07	WELL DESTROYED							
MW-18	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/05/07	WELL DESTROYED							

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Petroleum Compounds

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201 North Mine Street, McCormick, SC
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Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-18R	5/28/03	BDL	BDL	BDL	BDL	8.94	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	1.77	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	DRY							
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-19	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	1	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	DRY							
	12/20/04	DRY							
	6/05/07	WELL CASING BENT; BAILER OBSTRUCTED							
	1/7/09	WELL CASING BENT; BAILER OBSTRUCTED							
MW-19R	9/18/02	BDL	BDL	BDL	BDL	36.9	BDL	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/21/04	BDL	BDL	BDL	BDL	41	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	**54.7**	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	**66.5**	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	**61.6**	< 0.118	NA	< 0.0035
	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	**66.3**	< 0.176	< 0.116	< 0.0063
MW-20	10/11/96	**10,800**	**17,800**	**1,900**	9,240	**1,800**	BDL	NA	BDL
	8/20/98	**9,950**	**19,800**	**3,050**	**16,150**	**1,500**	**5,150**	NA	**678**
	9/19/01	DRY							
	12/20/04	**0.82 ft FREE PRODUCT**							
	6/07/07	**4,750**	**17,400**	**3,010**	**15,900**	**147**	**1,230**	**<500**	<0.010
	6/18/08	**0.73 ft FREE PRODUCT**							
	1/7/09	**0.29 ft FREE PRODUCT**							
	11/3/14	**0.29 ft FREE PRODUCT**							

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Petroleum Compounds

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WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-20R	9/18/02	**14,500**	**25,000**	**2,040**	8,590	**1,010**	**446**	NA	**46**
	5/29/03	**5,180**	**10,100**	**799**	4,540	**209**	**393**	NA	**E-67**
	12/21/04	**9,100**	**20,000**	**1,900**	9800	**890**	**660**	NA	**54**
	6/07/07	**8,750**	**13,800**	**1,490**	6,820	**973**	**<500**	**<500**	<0.010
	6/18/08	**0.25 ft FREE PRODUCT**							
	1/7/09	**0.02 ft FREE PRODUCT**							
	11/3/14	**0.23 ft FREE PRODUCT**							
MW-21	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/28/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/05/07	1.52	2.89	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-22	10/11/96	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	8/20/98	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/19/01	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	NOT SAMPLED							
	6/05/07	1.23	1.86	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

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Petroleum Compounds

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201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-22D	6/07/07	3.2	8.2	1.24	6.01	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-24	10/11/96	BDL	135	155	715	BDL	BDL	NA	BDL
	8/20/98	2.6	2	12	86	BDL	12.9	NA	0.18
	9/19/01	BDL	BDL	BDL	BDL	4.67	BDL	NA	BDL
	9/18/02	BDL	BDL	BDL	6.4	BDL	1.6	NA	BDL
	5/29/03	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	0.021
	6/07/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-25	10/11/96	**2,510**	85	**2,160**	4,590	**447**	**480**	NA	BDL
	8/20/98	**3,081**	19	6	3,046	**788**	**393**	NA	**2.48**
	9/19/01	2.64	5.37	2.1	42.2	BDL	1.09	NA	BDL
	5/29/03	**740**	4.58	BDL	269.8	**562**	**112**	NA	**0.34**
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.183	**48.2**	5.01	NA	< 0.0035
	12/20/04	**1,200**	BDL	BDL	210	**370**	**180**	NA	**0.16**
	6/05/07	**27**	9.18	1.26	5.89	**130**	<5	<5	<0.010
	6/18/08	**71.0**	1.39	< 1.00	5.77	**151**	**26.1**	< 5.00	NA
	1/7/09	**23.7**	< 0.076	< 0.065	< 0.065	**48.2**	5.01	NA	< 0.0035
	11/3/14	PAVED OVER							

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-26	10/11/96	**9,200**	**18,370**	**2,100**	**9,800**	BDL	BDL	NA	BDL
	8/20/98	**9,760**	**19,053**	**2,455**	**12,534**	**200**	**728**	NA	**45**
	9/19/01	**999**	**4,220**	**906**	4,660	BDL	**2,070**	NA	BDL
	9/18/02	DRY							
	5/29/03	**6,110**	**15,300**	**2,650**	**14,020**	<100	**672**	NA	**E-15**
	12/20/04	**3,400**	**21,000**	**2,700**	**15,000**	<89	**940**	NA	**6.1**
	6/06/07	**1,730**	**8,510**	**904**	5,720	<200	<1000	<1000	<0.010
	6/18/08	**3,080**	**20,500**	**3,450**	**16,200**	< 250	**2,120**	< 1,250	NA
	1/7/09	**2,640**	**15,800**	**2,930**	**18,600**	< 7.69	**983**	NA	**0.171**
	11/4/14	**412**	**3,060**	**1,650**	9,880	< 1.93	**577**	**< 2.9**	< 0.0063
MW-27	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
PW-28	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/07/07	**8.74**	10.4	1.30	6.63	<1	<5	<5	0.036
	6/18/08	< 1.00	1.67	< 1.00	5.56	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-29	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	–	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-30	12/20/04	BDL	BDL	BDL	BDL	BDL	BDL	NA	BDL
	6/06/07	<1	<1	<1	<3	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
PW-31	12/21/04	**7,100**	**15,000**	**1,600**	8500	**700**	**440**	NA	**42**
	6/07/07	**8,640**	**13,100**	**1,380**	6,830	**1,030**	**<500**	**<500**	<0.010
	6/18/08	**6,970**	**16,900**	**2,540**	9,360	**568**	**1,660**	**< 1,250**	NA
	1/7/09	**6,510**	**11,100**	**2,020**	9,580	**515**	**503 J**	NA	**1.34**
	11/3/14	**5,690**	**9,750**	**1,790**	6,320	**618**	**636**	**< 5.81**	**3.50**
MW-32	6/07/07	**13,700**	**16,000**	**2,040**	**10,100**	**2,160**	**872**	**<500**	**0.142**
	6/18/08	**2.25 ft FREE PRODUCT**							
	1/7/09	**2.00 ft FREE PRODUCT**							
	11/3/14	**0.81 ft FREE PRODUCT**							
MW-33	6/07/07	**8.95**	11.6	1.07	5.87	<1	<5	<5	<0.010
	6/18/08	< 1.00	< 1.00	< 1.00	< 3.00	< 1.00	< 5.00	< 5.00	NA
	1/7/09	< 0.065	< 0.076	< 0.065	< 0.183	< 0.077	< 0.118	NA	< 0.0035
	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-34	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	19.7	< 0.176	< 0.116	< 0.0063
MW-34D	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
MW-35	11/4/14	**21,800**	**42,300**	**3,430**	**17,500**	< 38.5	**3,180**	**< 58.1**	**6.19**
MW-36	11/3/14	**0.13 ft FREE PRODUCT**							
MW-37	11/3/14	< 0.555	< 0.609	< 0.545	< 0.894	**314**	< 0.880	< 0.581	< 0.0063
MW-38	11/5/14	**4,000**	**2,810**	**1,910**	6,310	**268**	**491**	**< 5.81**	< 0.0063
MW-38 Dup	11/5/14	**3,990**	**2,310**	**1,470**	5,060	**281**	**500**	**< 5.81**	< 0.0063
MW-39	11/3/14	**0.21 ft FREE PRODUCT**							
MW-40	11/3/14	**570**	**5,590**	**2,240**	8,520	**115 J**	**881**	**< 5.81**	< 0.0063
MW-40 Dup	11/3/14	**601**	**6,120**	**2,880**	**10,600**	**123 J**	**1,080**	**< 5.81**	0.019
MW-41	11/4/14	**21,000**	**35,500**	**3,210**	**15,000**	**2,300**	**1,500**	**171 J**	**13.7**

TABLE 3
GROUND WATER ANALYTICAL DATA
Petroleum Compounds

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL-BENZENE (µg/L)	XYLENES (µg/L)	MTBE (µg/L)	NAPHTH-ALENE (µg/L)	1,2 DCA (µg/L)	EDB (µg/L)
RBSL	--	*5*	*1,000*	*700*	*10,000*	*40*	*25*	*5*	*0.05*
MW-42	11/3/14	**23.6 J**	< 0.609	< 0.545	< 0.894	**410**	**26.6**	**10.4 J**	< 0.0063
MW-43	11/3/12	< 0.111	< 0.122	8.62	14.9 J	< 0.077	8.13	< 0.116	< 0.0063
MW-44	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	6.95	< 0.116	< 0.0063
Field Blank	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
	11/4/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
	11/5/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	< 0.0063
Trip Blank	11/3/14	< 0.111	< 0.122	< 0.109	< 0.179	< 0.077	< 0.176	< 0.116	NA

Notes:

1 Results shown in boldface type indicate concentrations which exceed the RBSL for that compound
2 BDL - below laboratory method detection limit
3 µg/L - micrograms per liter or parts per billion
4 NS- not sampled. There was not a sufficient amount of water in the monitoring well to allow for analysis
5 NA- not analyzed/ data not available
6 MTBE - Methyl-tert-butyl-ether
7 EDB - 1,2- Dibromomethane
9 1, 2 DCA - 1,2 Dichloroethane
10 RBSL- Risk-Based Screening Level as defined by the SCDHEC RBCA Document

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
MW-1	11/3/14	**1.0 ft FREE PRODUCT**							
MW-2	11/3/14	**2.10 ft FREE PRODUCT**							
MW-4	11/3/14	DRY							
MW-4R	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-5	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-6	11/5/14	**< 62,500**	**< 117**	**537 J**	< 18,800	**2,120 J**	< 120	**30,000**	< 243
MW-7B	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-8	11/3/14	UNABLE TO ACCESS WELL							
MW-8R	11/3/14	UNABLE TO ACCESS WELL							
MW-9B	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	70.4	< 0.487
MW-10	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-10R	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-11	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-12R	11/4/14	< 125	< 0.234	17.9	< 37.6	22.1	< 0.240	**894**	< 0.487
MW-13R	11/4/14	< 6,250	< 11.7	13.8 J	< 1,880	< 14.5	< 12.0	**1,380**	< 24.3
MW-14B	11/3/14	**0.01 ft FREE PRODUCT**							
MW-15	11/5/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-16	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-18R	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-19	11/3/14	WELL CASING BENT; BAILER OBSTRUCTED							
MW-19R	11/3/14	< 125	< 0.234	9.63	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-20	11/3/14	**0.29 ft FREE PRODUCT**							
MW-20R	11/3/14	**0.23 ft FREE PRODUCT**							
MW-21	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-22	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-22D	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-24	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
MW-25	11/3/14	PAVED OVER							
MW-26	11/4/14	< 3,120	< 5.85	< 5.90	< 940	< 7.25	< 6.00	< 25.3	< 12.2
MW-27	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
PW-28	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-29	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-30	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
PW-31	11/3/14	< 6,250	< 11.7	117 J	< 1,880	36.4 J	< 12.0	**10,300**	< 24.3
MW-32	11/3/14	**0.81 ft FREE PRODUCT**							
MW-33	11/3/14	INSUFFICIENT WATER TO SAMPLE							
MW-34	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-34D	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
MW-35	11/4/14	**< 62,500**	**< 117**	< 118	< 18,800	< 154	< 120	**17,700**	< 243
MW-36	11/3/14	**0.13 ft FREE PRODUCT**							
MW-37	11/3/14	< 625	< 1.17	29.0	< 188	< 1.45	< 1.20	56.4 J	< 2.43
MW-38	11/5/14	< 6,250	< 11.7	43.7 J	< 1,880	86.6 J	< 12.0	**4,640**	< 24.3
MW-38 Dup	11/5/14	< 6,250	< 11.7	44.5 J	< 1,880	76.1 J	< 12.0	**5,360**	< 24.3
MW-39	11/3/14	**0.21 ft FREE PRODUCT**							
MW-40	11/3/14	< 6,250	< 11.7	< 11.8	< 1,880	< 14.5	< 12.0	**4,350**	< 24.3
MW-40 Dup	11/3/14	< 6,250	< 11.7	< 11.8	< 1,800	< 14.5	< 12.0	**3,490**	< 24.3
MW-41	11/4/14	**< 25,000**	< 46.8	**409 J**	< 7,520	858 J	< 48.0	**27,400**	< 97.4
MW-42	11/3/14	< 625	< 1.17	58.7	< 188	96.8	< 1.20	**2,090**	< 2.43
MW-43	11/3/14	< 125	< 0.234	< 0.236	< 37.6	2.22 J	< 0.240	61.5	< 0.487
MW-44	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
Field Blank	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
	11/4/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487
	11/5/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

TABLE 3A
GROUND WATER ANALYTICAL DATA
Petroleum Compounds (Oxygenates)

FORMER SC-576
201 North Mine Street, McCormick, SC
UST Permit No. 06443
Terracon Project No. 73058013

WELL NUMBER	SAMPLE DATE	Ethanol (µg/L)	ETBE (µg/L)	DIPE (µg/L)	ETBA (µg/L)	TBA (µg/L)	TAME (µg/L)	TAA (µg/L)	TBF (µg/L)
RBSL	--	*10,000*	*47*	*150*	*NE*	*1,400*	*128*	*240*	*NE*
Trip Blank	11/3/14	< 125	< 0.234	< 0.236	< 37.6	< 0.290	< 0.240	< 1.01	< 0.487

Notes:
1) Results shown in boldface type indicate detected compounds.
2) µg/L - micrograms per liter or parts per billion
3) ALs- SCDHEC Action Levels
4) NE - Not Established
5) 1,2-DCA = 1,2-dichloroethane
6) 8 Oxygenates abbreviated as:
   - ETBE = ethyl tert-butyl ether
   - DIPE = diisopropyl ether
   - ETBA = ethyl tert-butanol
   - TBA = t-butanol
   - TAME = t-amyl methyl ether
   - TAA = tert-amyl alcohol
   - TBF = tert-butyl formate

Data set..... A:\MW7B.D
Data set title..... MW-7B SLUG TEST McCORMICK, SC

Knowns and Constants:
No. of data points..... 21
Radius of well casing..... 0.08333
Radius of well..... 0.3333
Aquifer saturated thickness..... 50
Well screen length..... 15
Static height of water in well..... 23.82
Log(Re/Rw)..... 2.716
A, B, C..... 2.918, 0.471, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	1.0050E-004	+/-	2.6258E-006
y0 =	3.1272E+000	+/-	3.7583E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
Number of residuals..... 21
Number of estimated parameters.... 2
Degrees of freedom..... 19
Residual mean..... 0.006604
Residual standard deviation..... 0.06846
Residual variance..... 0.004687

Model Residuals:

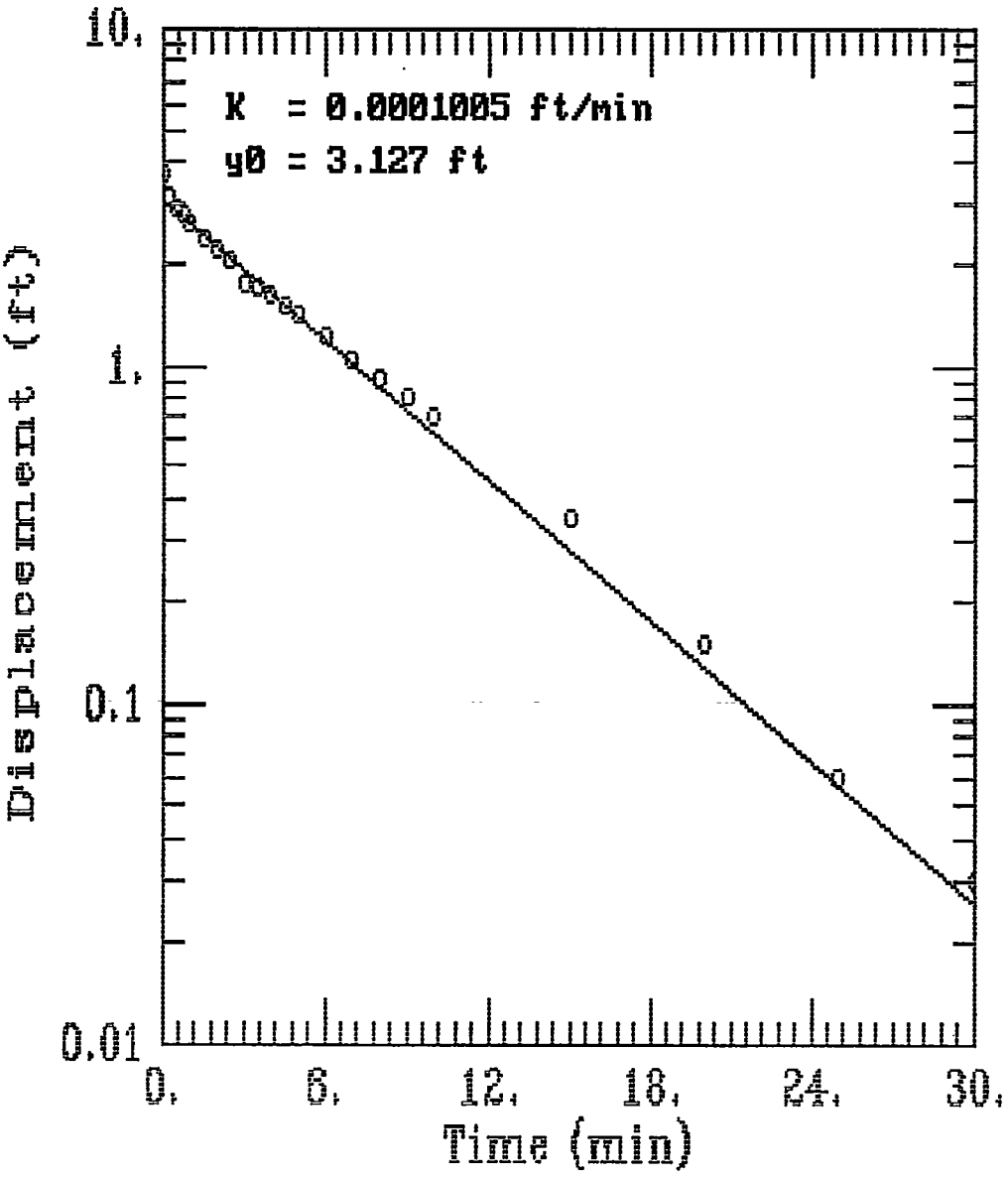
Time	Observed	Calculated	Residual	Weight
0.25	3.15	3.0047	0.14534	1
0.5	2.94	2.8869	0.05305	1
0.75	2.78	2.7738	0.0061514	1
1	2.68	2.6652	0.014822	1
1.5	2.39	2.4604	-0.070443	1
2	2.23	2.2714	-0.041435	1
2.5	2.03	2.0969	-0.066947	1
3	1.76	1.9359	-0.17586	1
3.5	1.73	1.7872	-0.057152	1
4	1.63	1.6499	-0.019865	1
4.5	1.52	1.5231	-0.0031249	1
5	1.42	1.4061	0.013879	1
6	1.22	1.1984	0.021614	1
7	1.05	1.0213	0.028659	1
8	0.93	0.87045	0.059548	1
9	0.81	0.74185	0.068145	1
10	0.7	0.63226	0.067744	1
15	0.35	0.28429	0.065709	1
20	0.15	0.12783	0.02217	1
25	0.06	0.057478	0.0025217	1
30	0.03	0.025845	0.0041551	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	1.0050E-004
y0 =	3.1272E+000

MW-7B SLUG TEST McCORMICK, SC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TEST DESCRIPTION

Data set..... A:\MW14B.D
Data set title..... MW-14B SLUG TEST McCORMICK, SC

Knowns and Constants:
- No. of data points..... 13
- Radius of well casing..... 0.08333
- Radius of well..... 0.3333
- Aquifer saturated thickness..... 50
- Well screen length..... 20
- Static height of water in well..... 22.93
- Log(Re/Rw)..... 2.811
- A, B, C..... 3.377, 0.539, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.2346E-005	+/-	6.9381E-006
y0 =	1.1209E+000	+/-	5.6836E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals..... 13
- Number of estimated parameters.... 2
- Degrees of freedom..... 11
- Residual mean..... 0.002816
- Residual standard deviation..... 0.1238
- Residual variance..... 0.01532

Model Residuals:

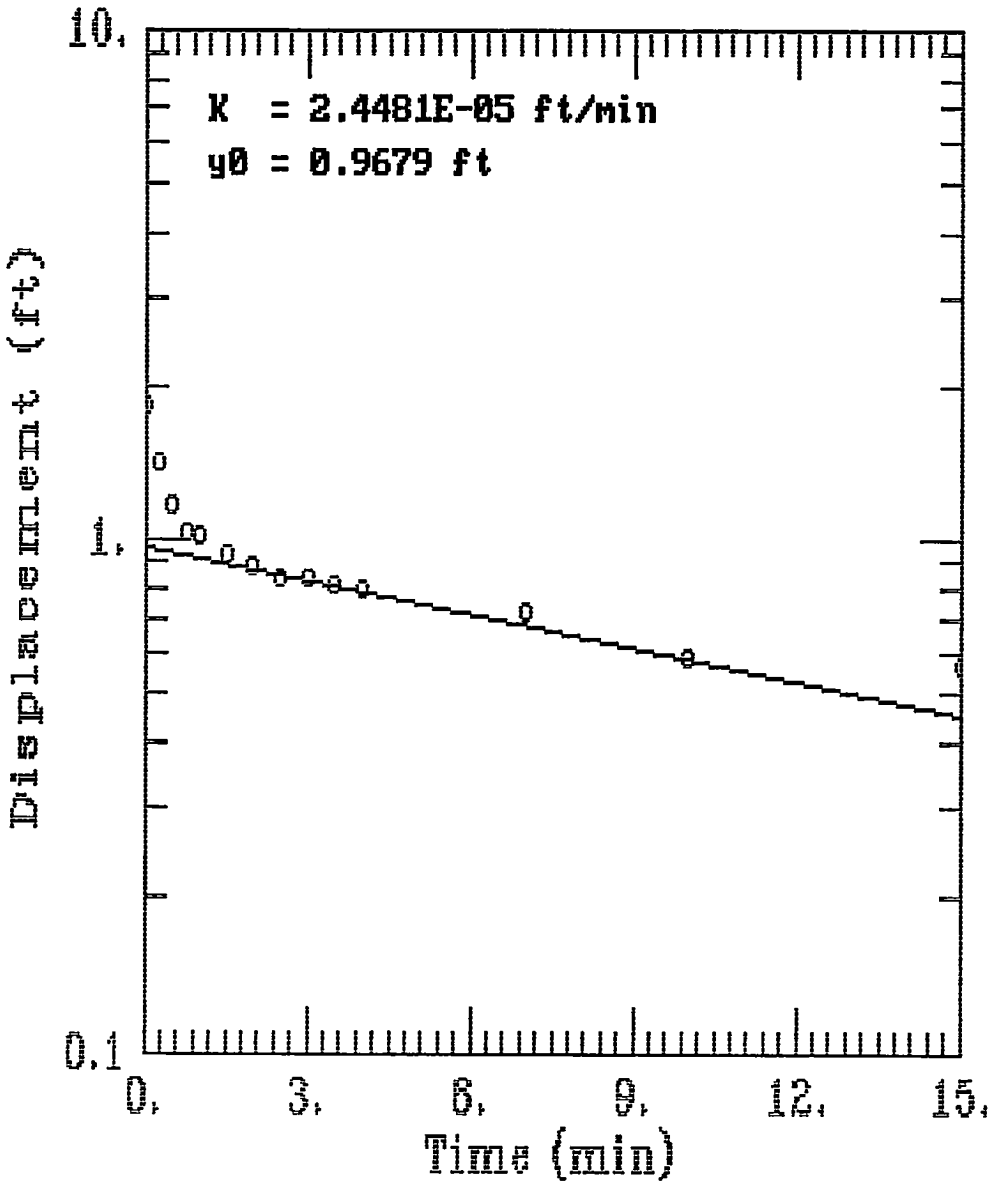
Time	Observed	Calculated	Residual	Weight
0.25	1.41	1.1025	0.3075	1
0.5	1.17	1.0844	0.085623	1
0.75	1.04	1.0666	-0.026555	1
1	1.02	1.049	-0.029025	1
1.5	0.94	1.0148	-0.074827	1
2	0.89	0.98174	-0.091743	1
2.5	0.84	0.94974	-0.10974	1
3	0.84	0.91878	-0.078775	1
3.5	0.82	0.88882	-0.068823	1
4	0.8	0.85985	-0.059847	1
7	0.72	0.70478	0.015216	1
10	0.59	0.57768	0.012315	1
15	0.57	0.41471	0.15529	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.2346E-005
y0 =	1.1209E+000

MW-14B SLUG TEST McCORMICK, SC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

TEST DESCRIPTION

Data set..... A:\MW25D
Data set title..... MW-25 SLUG TEST McCORMICK, SC

Knowns and Constants:
- No. of data points..... 21
- Radius of well casing..... 0.08333
- Radius of well..... 0.3333
- Aquifer saturated thickness..... 50
- Well screen length..... 15
- Static height of water in well..... 23.22
- Log(Re/Rw)..... 2.703
- A, B, C..... 2.918, 0.471, 0.000

ANALYTICAL METHOD

Bouwer-Rice (Unconfined Aquifer Slug Test)

RESULTS FROM STATISTICAL CURVE MATCHING

STATISTICAL MATCH PARAMETER ESTIMATES

	Estimate		Std. Error
K =	3.8698E-005	+/-	1.5379E-006
y0 =	4.5278E+000	+/-	5.6787E-002

ANALYSIS OF MODEL RESIDUALS

residual = calculated - observed
weighted residual = residual * weight

Weighted Residual Statistics:
- Number of residuals..... 21
- Number of estimated parameters.... 2
- Degrees of freedom..... 19
- Residual mean..... 0.01242
- Residual standard deviation..... 0.1394
- Residual variance..... 0.01945

Model Residuals:

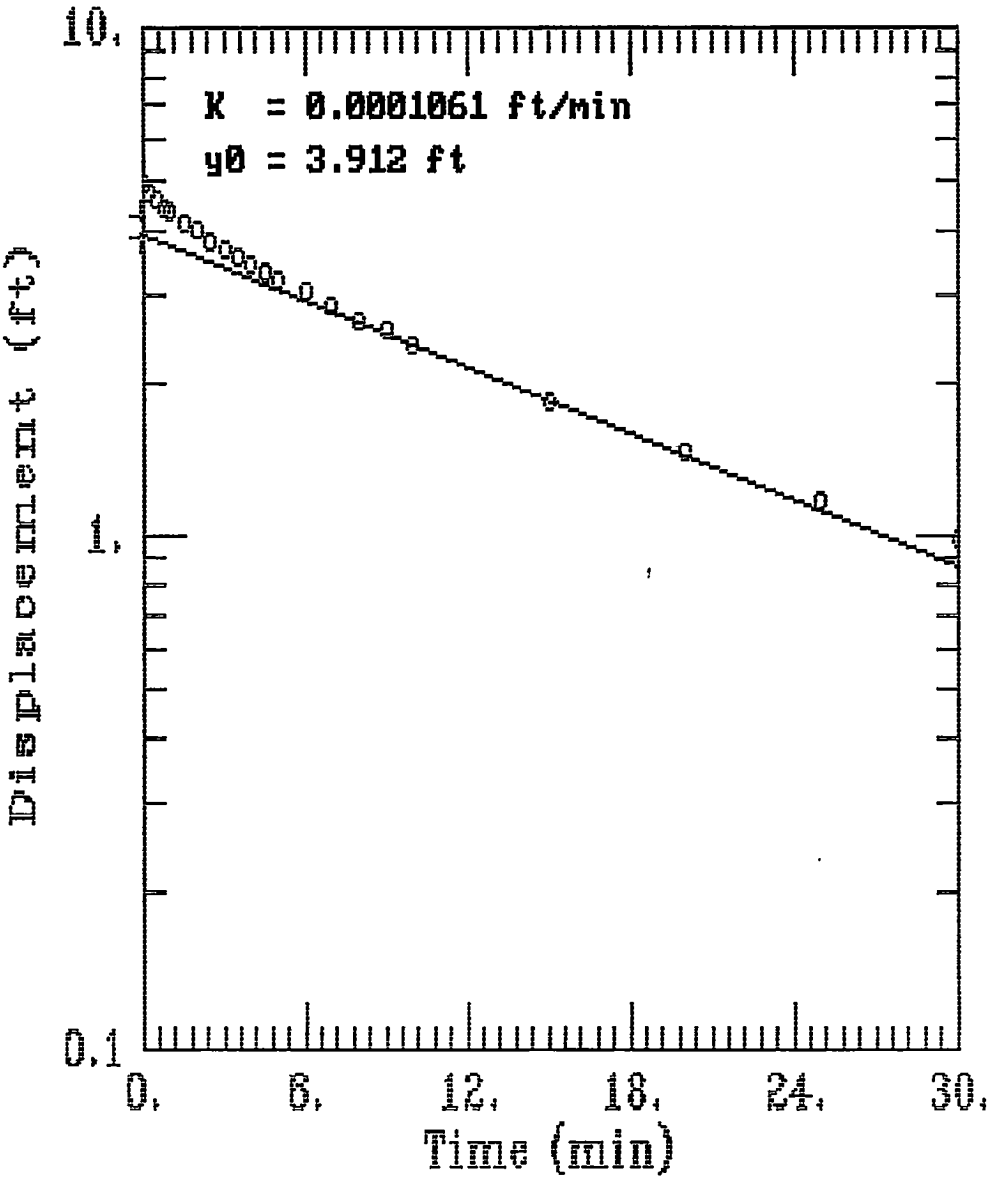
Time	Observed	Calculated	Residual	Weight
0.25	4.73	4.4583	0.27169	1
0.5	4.6	4.3899	0.2101	1
0.75	4.4	4.3225	0.077465	1
1	4.33	4.2562	0.073794	1
1.5	4.12	4.1266	-0.0065875	1
2	3.96	4.0009	-0.040916	1
2.5	3.81	3.8791	-0.069072	1
3	3.68	3.7609	-0.080938	1
3.5	3.55	3.6464	-0.096402	1
4	3.42	3.5354	-0.11535	1
4.5	3.32	3.4277	-0.10769	1
5	3.21	3.3233	-0.1133	1
6	3.02	3.124	-0.10397	1
7	2.83	2.9366	-0.10659	1
8	2.66	2.7605	-0.10045	1
9	2.53	2.5949	-0.064877	1
10	2.39	2.4392	-0.049235	1
15	1.85	1.7903	0.059652	1
20	1.46	1.3141	0.14592	1
25	1.17	0.96451	0.20549	1
30	0.98	0.70793	0.27207	1

RESULTS FROM VISUAL CURVE MATCHING

VISUAL MATCH PARAMETER ESTIMATES

	Estimate
K =	3.8698E-005
y0 =	4.5278E+000

MW-25 SLUG TEST, McCORMICK, SC



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

EQUATIONS USED FOR ESTIMATING GROUNDWATER VELOCITY AND TRANSMISSIVITY

To estimate the average groundwater velocity, the following modified Darcian flow equation was used:

EQUATION: $V_h = \frac{(K_h)*(I)}{n}$

WHERE:

V_h = Average Horizontal Velocity (ft/day)
K_h = Average Horizontal Hydraulic Conductivity (ft/day)
I = Hydraulic Gradient (ft/ft)
n = Porosity (%)

THEREFORE: $V_h = \frac{0.11 \times 0.02}{0.15}$

V_h = **0.014667 ft/day**
5.353333 ft/yr

The transmissivity of the surficial aquifer was estimated using the following equation:

EQUATION: $T = K_h * b$

WHERE:

T = Transmissivity (ft^2/day)
K_h = Horizontal Hydraulic Conductivity (ft/day)
b = Saturated Thickness of Aquifer (ft)

THEREFORE: $T = 0.11 \times 50$

T = 5.5 ft^2/day

APPENDIX I
FREE-PRODUCT RECOVERY TESTS

FREE-PRODUCT RECOVERY TEST RESULTS (MW-1)

	depth to product (ft)	depth to water (ft)	initial product thickness (ft)
	21.77	24.13	2.36

time (min)			change in product thickness (ft)
0	24.39	24.82	0.43
2	23.97	24.47	0.5
3	23.82	24.34	0.52
4	23.72	24.23	0.51
5	23.65	24.15	0.5
10	23.42	23.8	0.38
15	23.3	23.59	0.29
25	23.13	23.39	0.26
35	22.94	23.28	0.34
45	22.78	23.2	0.42
55	22.66	23.09	0.43
70	22.55	23	0.45
171	22.3	22.92	0.62
1070	22.18	23.13	0.95

~18 hrs.

$$\frac{0.95}{2.36} = 40.25424\ \%$$ recovery over a period of 1070 minutes.

FREE-PRODUCT RECOVERY TEST RESULTS (RW-1)

	depth to product (ft)	depth to water (ft)	initial product thickness (ft)
	22.45	23.12	0.67
time (min)			change in product thickness (ft)
0	22.91	23.28	0.37
3	22.75	23.18	0.43
4	22.7	23.1	0.4
5	22.67	23	0.33
6	22.64	23.06	0.42
7	22.62	23.05	0.43
8	22.6	23.02	0.42
13	22.56	23	0.44
18	22.54	22.95	0.41
23	22.52	22.97	0.45
28	22.52	22.97	0.45
33	22.52	22.94	0.42
38	22.5	22.94	0.44
48	22.51	22.97	0.46
58	22.5	22.95	0.45
101	22.52	22.95	0.43
138	22.49	22.95	0.46

$\frac{0.46}{0.67}$ = 68.65672 % recovery over a period of 138 minutes. ~ 2.3hrs

FREE-PRODUCT RECOVERY TEST RESULTS (MW-4)

depth to product (ft)	depth to water (ft)	initial product thickness (ft)
23.1	24.67	1.57

time (min)			change in product thickness (ft)
0	23.7	24.2	0.5
5	23.52	23.89	0.37
10	23.48	23.87	0.39
15	23.45	23.87	0.42
20	23.45	23.91	0.46
108	23.35	24	0.65
1010	23.42	24.24	0.82

$\frac{0.82}{1.57}$ = 52.2293 % recovery over a period of 1010 minutes. ≈ 16.8 hrs

APPENDIX J
SOIL LEACHIBILITY MODEL

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 06443 COUNTY McCormick
FACILITY NAME Former Crown Service Station SC-576
STREET ADDRESS 200 North Mine Street (SC Highway 28)

Soil Risk Evaluation Data

				Figure
TPH		361 mg/kg		
Soil % SAND		17 %		
Soil % CLAY		5 %		
Worst Case	Benzene	0.866 mg/kg	C_S	
Soil Analyses	Toluene	6.62 mg/kg	C_S	
	Ethylbenzene	4.46 mg/kg	C_S	
	Xylenes	19.3 mg/kg	C_S	
	Naphthalene	11.4 mg/kg	C_S	
Natural Organic Carbon Content		30 mg/kg	f_{oc}	
Average Annual Recharge		25 cm	H_W	
Distance from highest Soil Contamination to water table		67 cm	L	
Bulk Density of Soil		1.05 g/cc 1.5	Bd	1
Wetting Front Section		– 30 cm	H_f	2
Soil Hydraulic Conductivity		0.00014 cm/sec	K_f	3
Porosity		0.45 % 45	Φ	4
Residual Water Content		0.04 %	W_r	5

List possible human exposure pathways from surface soil.

Dermal Contact and Absorption
Ingestion of Surface Soils
Inhalation of Volatiles

IN-SITU SOIL RISK EVALUATION

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: BENZENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	16 days	$t_{1/2}$	1
Soil/water partitioning coefficient	81 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	6.21 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00243 mg/l	K_d	III	1
Contamination Percolation Rate	129.7 ft/yr	V_c	III	2
Time to Reach Groundwater	6.19 days	T_c	IV	1
Concentration Reaching Groundwater	6.21 mg/l	C_w	IV	2
Site Specific Target Level	0.228245 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR BENZENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil:	30 mg/kg		f_{oc}
Total Petroleum Hydrocarbon (EPA Method 3550):	361 mg/kg		TPH
Total organic carbon content:	0.000227 %		f_{cs}
concentration of the COC in soil (worst case sample):	0.866 mg/kg		C_s
porosity:	0.45		Φ
residual water content:	0.04		W_r
bulk density of soil:	1.05 g/cc		Bd
soil organic/water partitioning coefficient:	81 ml/g		Koc
Henry's Law Constant:	0.226		H'
concentration of the COC in soil pore water:	6.212208 mg/l		C_w

EQUATION SET II

air filled porosity:	0.41			f
field saturated hydraulic conductivity:	0.00014 cm/sec			
distance from the depth of the worst case soil sample to the water table:	67 cm			L
average annual recharge:	25 cm			H_w
wetting front suction head:	30 cm			H_f
time required for water to travel distance (L):	530874 seconds	6.144339 days		t
velocity of water:	130.4304 ft/yr			V_w

EQUATION SET III

soil/water distribution coefficient: 0.00243 ml/g K_d

COC percolation rate: 129.695 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.186279 days T_c

biodegradation "half-life" of COC: 16 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

4.750606 mg/l C_{rbsl}

If 6.212208 is less than 4.750606 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 0.228245 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: TOLUENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	22 days	$t_{1/2}$	1
Soil/water partitioning coefficient	133 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	36.99 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00399 mg/l	K_d	III	1
Contamination Percolation Rate	129.23 ft/yr	V_c	III	2
Time to Reach Groundwater	6.21 days	T_c	IV	1
Concentration Reaching Groundwater	36.99 mg/l	C_w	IV	2
Site Specific Target Level	2.231452 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR TOLUENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil:	30 mg/kg		f_{oc}
Total Petroleum Hydrocarbon (EPA Method 3550):	361 mg/kg		TPH
Total organic carbon content:	0.000227 %		f_{cs}
concentration of the COC in soil (worst case sample):	6.62 mg/kg		C_s
porosity:	0.45		Φ
residual water content:	0.04		W_r
bulk density of soil:	1.05 g/cc		Bd
soil organic/water partitioning coefficient:	133 ml/g		Koc
Henry's Law Constant:	0.301		H'
concentration of the COC in soil pore water:	36.98848 mg/l		C_w

EQUATION SET II

air filled porosity:	0.41				f
field saturated hydraulic conductivity:	0.00014 cm/sec				
distance from the depth of the worst case soil sample to the water table:	67 cm				L
average annual recharge:	25 cm				H_w
wetting front suction head:	30 cm				H_f
time required for water to travel distance (L):	530874	seconds	6.144339	days	t
velocity of water:	130.4304 ft/yr				V_w

EQUATION SET III

soil/water distribution coefficient: 0.00399 ml/g K_d

COC percolation rate: 129.2273 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.20867 days T_c

biodegradation "half-life" of COC: 22 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

30.41128 mg/l C_{rbsl}

If 36.98848 is less than 30.41128 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 2.231452 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: ETHYLBENZENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	10 days	$t_{1/2}$	1
Soil/water partitioning coefficient	176 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	24.71 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.00528 mg/l	K_d	III	1
Contamination Percolation Rate	128.84 ft/yr	V_c	III	2
Time to Reach Groundwater	6.23 days	T_c	IV	1
Concentration Reaching Groundwater	24.71 mg/l	C_w	IV	2
Site Specific Target Level	1.97 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR ETHYLBENZENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil:	30 mg/kg		f_{oc}
Total Petroleum Hydrocarbon (EPA Method 3550):	361 mg/kg		TPH
Total organic carbon content:	0.000227 %		f_{cs}
concentration of the COC in soil (worst case sample):	4.46 mg/kg		C_s
porosity:	0.45		Φ
residual water content:	0.04		W_r
bulk density of soil:	1.05 g/cc		Bd
soil organic/water partitioning coefficient:	176 ml/g		Koc
Henry's Law Constant:	0.28		H'
concentration of the COC in soil pore water:	24.71325 mg/l		C_w

EQUATION SET II

air filled porosity:	0.41		f
field saturated hydraulic conductivity:	0.00014 cm/sec		
distance from the depth of the worst case soil sample to the water table:	67 cm		L
average annual recharge:	25 cm		H_w
wetting front suction head:	30 cm		H_f
time required for water to travel distance (L):	530874 seconds	6.144339 days	t
velocity of water:	130.4304 ft/yr		V_w

EQUATION SET III

soil/water distribution coefficient: 0.00528 ml/g K_d

COC percolation rate: 128.843 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.227186 days T_c

biodegradation "half-life" of COC: 10 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

16.04361 mg/l C_{rbsl}

If 24.71325 is less than 16.04361 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 1.972931 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: XYLENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	28 days	$t_{1/2}$	1
Soil/water partitioning coefficient	639 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	68.71 mg/l	C_w	I	2
Air Filled Porosity	0.41 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.01917 mg/l	K_d	III	1
Contamination Percolation Rate	124.85 ft/yr	V_c	III	2
Time to Reach Groundwater	6.43 days	T_c	IV	1
Concentration Reaching Groundwater	68.71 mg/l	C_w	IV	2
Site Specific Target Level	19.92 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR XYLENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil:	30 mg/kg		f_{oc}
Total Petroleum Hydrocarbon (EPA Method 3550):	361 mg/kg		TPH
Total organic carbon content:	0.000227 %		f_{cs}
concentration of the COC in soil (worst case sample):	19.3 mg/kg		C_s
porosity:	0.45		Φ
residual water content:	0.04		W_r
bulk density of soil:	1.05 g/cc		Bd
soil organic/water partitioning coefficient:	639 ml/g		Koc
Henry's Law Constant:	0.278		H'
concentration of the COC in soil pore water:	68.71463 mg/l		C_w

EQUATION SET II

air filled porosity:	0.41		f
field saturated hydraulic conductivity:	0.00014 cm/sec		
distance from the depth of the worst case soil sample to the water table:	67 cm		L
average annual recharge:	25 cm		H_w
wetting front suction head:	30 cm		H_f
time required for water to travel distance (L):	530874 seconds	6.144339 days	t
velocity of water:	130.4304 ft/yr		V_w

EQUATION SET III

soil/water distribution coefficient: 0.01917 ml/g K_d

COC percolation rate: 124.846 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.426553 days T_c

biodegradation "half-life" of COC: 28 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

58.5995 mg/l C_{rbsl}

If 68.71463 is less than 58.5995 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 19.9168 mg/kg C_{sstl}

IN-SITU SOIL RISK EVALUATION

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID: # 6443
FACILITY NAME Former Crown Service Station SC-576

Instructions

Provide results, separately, for each constituent in the worst case soil analyses.

Data

List constituent: NAPHTHALENE
(BTEX, Naphth.)

			Table
Bioremediation "half-life"	48 days	$t_{1/2}$	1
Soil/water partitioning coefficient	1543 ml/g	k_{oc}	2

Results

			Equation Set	Step
Total Organic Carbon Content	0.000227 decimal%	f_{cs}	I	1
Leachate Concentration	30.44 mg/l	C_w	I	2
Air Filled Porosity	0.45 decimal%	f	II	1
Infiltration Rate Time	530874 seconds	t	II	2
Velocity of Water	130.43 ft/yr	V_w	II	3
Soil/Water Distribution Coefficient	0.04629 mg/l	K_d	III	1
Contamination Percolation Rate	117.72 ft/yr	V_c	III	2
Time to Reach Groundwater	6.82 days	T_c	IV	1
Concentration Reaching Groundwater	30.44 mg/l	C_w	IV	2
Site Specific Target Level	21.3 mg/l	C_{sstl}	V	

Conclusions

Does concentration of chemical of concern in soil exceed SSTL? YES
Risk of Human Exposure due to contaminated soil.

XXX YES _____ NO

Page 2 of 2 pages

IN-SITU SOIL RISK EVALUATION

SOIL LEACHABILITY MODEL FOR NAPHTHALENE
Former Crown Service Station SC-576
200 North Mine Street
McCormick, South Carolina
MEADE Project No. 209.60

*Fill in the shaded areas

EQUATION SET I

natural organic carbon content in mg/kg of uncontaminated soil: 30 mg/kg f_{oc}

Total Petroleum Hydrocarbon (EPA Method 3550): 361 mg/kg TPH

Total organic carbon content: 0.000227 % f_{cs}

concentration of the COC in soil (worst case sample): 11.4 mg/kg C_s
porosity: 0.45 Φ
residual water content: 0.04 W_r
bulk density of soil: 1.05 g/cc Bd
soil organic/water partitioning coefficient: 1543 ml/g K_{oc}
Henry's Law Constant: 0.002 H'

concentration of the COC in soil pore water: 30.43596 mg/l C_w

EQUATION SET II

air filled porosity: 0.41 f

field saturated hydraulic conductivity: 0.00014 cm/sec
distance from the depth of the worst case soil sample to the water table: 67 cm L
average annual recharge: 25 cm H_w
wetting front suction head: 30 cm H_f

time required for water to travel distance (L): 530874 seconds 6.144339 days t
velocity of water: 130.4304 ft/yr V_w

EQUATION SET III

soil/water distribution coefficient: 0.04629 ml/g K_d

COC percolation rate: 117.7159 ft/yr V_c

EQUATION SET IV

Time required for the COC to reach groundwater: 6.815813 days T_c

biodegradation "half-life" of COC: 48 days $t_{1/2}$

estimate of the concentration of COC in the soil pore water necessary to protect groundwater:

27.58056 mg/l C_{rbsl}

If 30.43596 is less than 27.58056 ,do not proceed to Equation Set 5.

EQUATION SET V

dilution/attenuation factor (unitless): 2 DAF

Site Specific Target Level for the COC in soil: 21.3021 mg/kg C_{sstl}

```
SITE INFORMATION                                        Caps
================================ ENTERED / UPDATED BY: [KM          ] / [07/16/90]
                                                    N-35-NO-06443   [  -  -   ]
OWNER:     [FAST FARE INC                    ]
           [                                 ] [(301)539-7400]
ADDRESS:   [PO BOX 1168                      ]     TANKS
           [                                 ] BILLABLE TOTAL  FEES    PAIDTHRU
           [BALTIMORE      ][MD][21203-      ]   [3  ]  [3  ][ 300.00]   [88]
-------------------------------------------------------------------------------
SITE NAME: [FAST FARE #SC-576                ]     COUNTY          DISTRICT
           [                                 ] [MCCORMICK    ] [UPPER SAVANNAH  ]
ADDRESS:   [HWYS 28 & 32                     ]
           [MCCORMICK      ][SC][29835-      ]    LATITUDE         LONGITUDE
-------------------------------------------------------------------------------    [       ]        [       ]
CONTACT:   [JERRY W SPROUSE                  ]          TITLE: [                  ]
           [                                 ]
           [               ][  ][     -      ]        TELEPHONE: [(803)578-9162]
-------------------------------------------------------------------------------
NOTIFICATION / PERMIT REQUEST RECEIVED                PERMIT TO CONSTRUCT
          [07/13/87]                                      [  /  /  ]
COMMENTS: [                                                                   ]
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ESCAPE                ---   ends file maintenance   *** changes NOT saved. ***

TANK INFORMATION                                        Caps
================================ ENTERED / UPDATED BY: [           ] / [07/13/87]
                                                  N-35-NO-06443 / 001   [  -  -   ]

OWNER:     [FAST FARE INC                    ][                                 ]
FACILITY:  [FAST FARE #SC-576                ][                                 ]
                                          AGE (for NOTIFICATIONS)   CALCULATED AGE
TANK STATUS:              [CIU]                   [15 ]                 [ 18]
PRODUCT LEFT STORED (gal): [    ]          LAST USED:                    [  /  /  ]
ABANDONMENT METHOD:        [  ]           ABANDONED:                    [  /  /  ]
-------------------------------------------------------------------------------
CAPACITY:              [8000   ]           LINER:                    [ ]
PETROLEUM SUBSTANCE:   [GN]                CHEMICAL SUBSTANCE:       [          ]
OTHER SUBSTANCE:       [          ]        TANK CONSTRUCTION:        [SL]
PIPE CONSTRUCTION:     [SL]                TANK PROTECTION:          [  ]
PIPE PROTECTION:       [  ]                FEET TO NEAREST WELLS:    [     ]
TANK CONTAINMENT:      [     ]             PIPE CONTAINMENT:         [     ]
VARIANCE GRANTED (Y/N): [ ]                LEAK DETECTION METHOD:    [  ]
INSTALLED:             [  /  /  ]          PERMITTED TO OPERATE:     [  /  /  ]
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COMMENTS: [                                                                   ]
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TANK INFORMATION                                        Caps
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OWNER:     [FAST FARE INC                    ][                                 ]
FACILITY:  [FAST FARE #SC-576                ][                                 ]
                                          AGE (for NOTIFICATIONS)   CALCULATED AGE
TANK STATUS:              [CIU]                   [15 ]                 [ 18]
PRODUCT LEFT STORED (gal): [    ]          LAST USED:                    [  /  /  ]
ABANDONMENT METHOD:        [  ]           ABANDONED:                    [  /  /  ]
-------------------------------------------------------------------------------
CAPACITY:              [8000   ]           LINER:                    [ ]
PETROLEUM SUBSTANCE:   [GN]                CHEMICAL SUBSTANCE:       [          ]
OTHER SUBSTANCE:       [          ]        TANK CONSTRUCTION:        [SL]
PIPE CONSTRUCTION:     [SL]                TANK PROTECTION:          [  ]
PIPE PROTECTION:       [  ]                FEET TO NEAREST WELLS:    [     ]
TANK CONTAINMENT:      [     ]             PIPE CONTAINMENT:         [     ]
VARIANCE GRANTED (Y/N): [ ]                LEAK DETECTION METHOD:    [  ]
INSTALLED:             [  /  /  ]          PERMITTED TO OPERATE:     [  /  /  ]
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COMMENTS: [                                                                   ]
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OWNER:     [FAST FARE INC                    ][                                 ]
FACILITY:  [FAST FARE #SC-576                ][                                 ]
                                          AGE (for NOTIFICATIONS)   CALCULATED AGE
TANK STATUS:              [CIU]                   [15 ]                 [ 18]
PRODUCT LEFT STORED (gal): [    ]          LAST USED:                    [  /  /  ]
ABANDONMENT METHOD:        [  ]           ABANDONED:                    [  /  /  ]
-------------------------------------------------------------------------------
CAPACITY:              [8000   ]           LINER:                    [ ]
PETROLEUM SUBSTANCE:   [GN]                CHEMICAL SUBSTANCE:       [          ]
OTHER SUBSTANCE:       [          ]        TANK CONSTRUCTION:        [SL]
PIPE CONSTRUCTION:     [SL]                TANK PROTECTION:          [  ]
PIPE PROTECTION:       [  ]                FEET TO NEAREST WELLS:    [     ]
TANK CONTAINMENT:      [     ]             PIPE CONTAINMENT:         [     ]
VARIANCE GRANTED (Y/N): [ ]                LEAK DETECTION METHOD:    [  ]
INSTALLED:             [  /  /  ]          PERMITTED TO OPERATE:     [  /  /  ]
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COMMENTS: [                                                                   ]
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UST DOCKET 48 Tech

J. Blitz of FF called in failed system test on 11-15-90. Premium system failed.

There will be a Pre-Bid/ MWBE Outreach Meeting for subcontractors and material suppliers for the New Richland Two Elementary School #20 on June 25, 2015 at 5:30pm to 7:00pm at the Richland Two Conference Center at Columbia Place Mall located at 7201 Two Notch Rd in Columbia, SC 29223.
Minority and Women Owned Businesses are encouraged to attend this meeting to gain valuable insight on the bidding opportunities available for this project.

The scope of work includes:

- A new 126,350 square foot elementary school building with connected one-story and two-story building areas
- All elements of site work are currently under contract
- Concrete, brick and block masonry, steel bar joists, roof trusses, low slope roofing, metal roofing
- Interior and exterior finishes
- Plumbing, HVAC, Fire Protection, Electrical, exterior improvements, and all other elements necessary to complete construction of the new school and associated grounds

For general questions, contact Scott Spigener with Thompson Turner Construction at 803-972-7778 or via email at Sspigener@thompsonind.com RSVP to Tasha Morgan with Construction Dynamics, Inc. at 803-754-3395 ex: 300 or via email at Tmorgan@cdi-sc.com

Marsha P. Lomas, CPPB
Richland School District Two, 124 Risdon Way, Columbia, SC 29223 Purchasing
803-738-3298, 803-738-7527 Fax, mlomas@richland2.org

Environmental Remediation

Description: CORRECTIVE ACTION OF A PETROLEUM RELEASE FROM REGULATED UNDERGROUND STORAGE TANKS, MINE STREET MART, PERMIT #06443
Solicitation Number: SN06443-O/O
Delivery Point: McCormick, SC
Submit Offer By: July 20, 2015 4:30pm
Purchasing Agency: SC DHEC, 2600 Bull Street, Columbia, SC 29201
Buyer: UST Owner/Operator
Direct Inquiries To: Lee A. Monts - UST Program – 803-898-0668 or montsla@dhec.sc.gov
Download Solicitation From: Click Here

Equipment

READVERTISEMENT AMEND CLOSING DATE

1516-001-PL -- TYMCO MODEL 600 REGENERATIVE AIR SWEEPER OR EQUAL

The Town of Mount Pleasant (Town) shall receive bids for One (1) Tymco Model 600 Regenerative Air Sweeper, or Equal. Bids will be received until 3:00pm, June 29, 2015, at the Town's Municipal Complex, 100 Ann Edwards Lane, Mount Pleasant, South Carolina 29464, at which time and place all bids shall be publicly opened, read aloud, and tabulated in Public Meeting Room 2, located within Building C, at the Town's Municipal Complex, 100 Ann Edwards Lane, Mount Pleasant South Carolina 29464. Each bid shall be submitted in a sealed envelope clearly marked, "One (1) Tymco Model 600 Regenerative Street Sweeper, or Equal Bid Number 1516-001-PL", and include the Bidder's name and address.

Each bid shall be submitted on the bid form provided by the Town. Bid forms and specifications may be obtained from the Town's Purchasing Division, 100 Ann Edwards Lane, Mount Pleasant, South Carolina 29464, 843-884-8517.