From: Bennie Underwood <bennie@demaximis.com>
Sent: Thursday, December 1, 2022 6:47 PM
To: Hornosky, Tim <hornostr@dhec.sc.gov>
Cc: Nicole Barkasi <nik@demaximis.com>
Subject: FPE Edgefield - Source Remediation

Tim,
Attached for your review is the draft Source Removal and Treatment Work Plan for Edgefield. It was good to talk to you, and your suggestion of identifying and removing previously submitted material significantly reduced the size of the doc.

We are planning to bid the work in the very near future. Looking forward to getting your input. Give me a call if you would like to discuss.

Thanks.

de maximis, inc.

Bennie L. Underwood
450 Montbrook Lane
Knoxville, TN 37919
ph. 865-691-5052
cell 865-607-0560

51133

DRAFT NOV22

Email Scanned
PM Copy

SOURCE AREA REMEDIATION WORK PLAN

FPE Edgefield

Edgefield, SC
November 2022

III

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TABLES

FIGURES

APPENDICES

1 Introduction

1.1 Site Location

The Federal Pacific Electric Company (FPE) Edgefield Site (Site) is located at 801 Augusta Road, Edgefield, South Carolina in Edgefield County as shown on Figure 1.

1.2 Background

The Site is a former electrical component manufacturing facility that ceased operations in 1984. FPE Liquidation Trust (FPE) currently operates an on-site and an off-site groundwater extraction system comprised of nine (9) extraction wells and a Toe Drain capture system as shown on Figure 2. Influent groundwater is conveyed to and treated at the on-site treatments system before discharge to either Outfall 001 and 002 under the National Pollutant Discharge Elimination System (NPDES) permit number SC0047813, Aiken County Public Sewer Authority (ACPSA) permit number FPE 2019-1), or the on-site infiltration trenches. Groundwater extraction and treatment has been on-going since 2004.

Based on the historic soil data collected and reported for the FPE Edgefield Site (Site), including the *Phase II Source Area Investigation Report,* Arcadis, 15DEC2014, and *Phase III Source Area Investigation Report*, Arcadis, 27JAN2016, three primary source areas have been identified: Area 1—Paint Bed Drying Area (PBDA); Area 2—Drum Burial Area (DBA); and Area 3—Degreasing Operational Area (DOA) as shown on Figure 3. Remedial alternatives outside of the on-site and off-site pumping operations were evaluated. Source Area Removal and Treatment (SART) was chosen as the most cost-effective alternative with which to proceed. Based on the previous data and work completed in these areas, a Field Test Work Plan (July 18, 2022) was completed and approved by SCDHEC by letter July 22, 2022, to evaluate the treatment alternative. The successful Field Test was performed in July and August 2022 to collect soil samples for soil lithology confirmation and to evaluate the proposed treatment method. The Source Area Removal and Treatment Field Test Report is provided as Appendix A.

1.3 Purpose

The purpose of this Work Plan is to define the general field activities to implement remediation of the identified source areas using excavation and on-site treatment. This plan includes health and safety considerations, use of oxidative amendments to enhance treatment of partially weathered bedrock (PWR) below the excavation, and performance monitoring post-excavation to assess long term effectiveness, along with contingency work elements, if needed.

2 Proposed Source Area Removal and Treatment Action

2.1 Objectives

- Remove and treat significantly impacted soils within the unsaturated overburden in three identified Source Areas;
- Apply chemical oxidant to the base of the excavations/surface of the partially weathered rock (PWR) to allow for treatment of residual CHC's and mitigate potential recontamination from water level rise after shutdown of the on-site groundwater extraction system; and

- Implement a Post-Source Area Removal and Treatment groundwater performance monitoring plan that will be used to evaluate changes in groundwater quality over time.

2.2 Overview

Source Area removal and treatment will include the following tasks:

- Remove monitoring and extraction wells within proposed areas during excavation. Table 1 identifies the existing wells expected to be removed during excavation. Figure 4 presents the entire monitoring well network and capture zones demonstrating that the off-site extraction system captures the entirety of the source area groundwater discharge.
- Excavate impacted soils within the vadose zone of the identified Source Areas (DBA, PBDA, DOA).
- Transport excavated soils to the manufacturing building slab for treatment using physical agitation and addition of an oxidizer (e.g. peroxide), if needed.
- Add a persulfate (or equivalent) oxidizer to the base of the excavation/top of the PWR.
- Backfill excavated areas to existing grades.

Materials used in backfill activities will consist of treated soils from the area and/or imported clean backfill materials from an approved and tested source. The use of treated soils as backfill materials will be based on the results of a post-treatment soils screening process. Materials that are effectively treated to concentrations below the re-use criteria will be used in backfill activities. Materials that are not effectively treated and/or not suitable for re-use as backfill will be transported to and disposed of at an off-site permitted facility in accordance with applicable regulations. Clean imported backfill will be used to replace materials disposed off-site.

The groundwater extraction system in the immediate vicinity of the excavated areas will be discontinued and water in the area allowed to re-saturate. Results from the post-removal/treatment groundwater performance monitoring program will be evaluated overtime and used to determine if additional remedial actions are warranted. Groundwater extraction in the vicinity of the treated areas will be discontinued for 3 to 7 years. This will allow for residual oxidant to be consumed and the excavated areas to re-saturate.

3 Source Areas

Figures 5, 6 and 7 show the current source contaminant distributions for the DBA, PBDA and DOA, respectively. The estimated contaminant mass for the DBA, PBDA and DOA are 39, 37 and 84 pounds, respectively. Prior to the Phase II and Phase III Source Area Investigations (2014 and 2016), certain remedial activities were performed as described below in 3.1.

3.1 Historical Activities

3.1.1 DBA

Drum excavation activities completed in 1999 are summarized in ATC's *Report of Drum Removal Activities*. The report explains the breakdown of the DBA into 11 excavation areas ranging in depths from 3 to 11 feet. The three largest areas covered most of the area and were excavated to depths ranging from 6 to 11 ft. Clean backfill was reported to be used in the excavated areas. Backfill was completed with the stockpiled soils from the area that were not stained or highly impacted.

3.1.2 PBDA

When excavating in 1997, ATC and their subcontractor excavated to approximately 12-14 feet. Excavation was stopped to prevent the excavation of groundwater. According to the 1997 *Former Paint Sludge Drying Bed Closure Report*, the soil became increasingly moist, indicative of groundwater saturation. The report also specifies clean backfill was brought in to fill the excavated areas back to previous grade. With operation of the onsite pumping since 2009, the depth to water has increased 10-15 feet.

3.1.3 DOA

The former manufacturing building was demolished in 2015, leaving only the building slab in place. The DOA characterization included samples from under the slab and no work altering the soils was reported to be completed in that area.

3.2 Source Area Removal and Treatment Field Test

A Field Test was performed to obtain data supporting and preparing for Source Area Removal and Treatment activities. The Field Test objectives were to 1) gather samples from each area and send for laboratory analysis to gather relevant data; 2) evaluate the efficiency of a 16-day treatment time for specified CHCs; 3). Determine if the addition of a peroxide solution will increase the destruction efficiency and decrease treatment time.

3.2.1 Field Test Results

The results from the Field Test indicated the contaminated soils are amenable and readily treatable by this Source Area Removal and Treatment Plan. Initial PID and laboratory analysis confirmed contamination above acceptable levels. By Day 2 of the test, contaminant levels were below the EPA Regional Screening Levels for both industrial soils and ground water protection. By Day 8, analytical results indicated all specified chlorinated hydrocarbon contaminants were below detection limits. It was determined that addition of a peroxide solution was not needed. The field test demonstrated that treatment could be achieved in as little as 2-8 days, without the addition of an oxidant. Field test data results are summarized in Table 2.

3.3 Area Specifications

The estimated total volume of soils to be excavated from all three areas is approximately 14,000 cubic yards. The volume of soils to be excavated in the PBDA, DBA, and DOA, is approximately 7,000 cubic yards, 3,000 cubic yards, and 4,000 cubic yards respectively. The 14,000 cubic yards includes an estimated 6,000 cubic yards of contaminated soils and 8,000 cubic yards of over-excavated soils (required to reach and remove the contaminated volume).

The approximate dimensions (in yards) of each area are as follows:

Area	Length	Width	Depth
PBDA	18	25	45
DBA	8	8	8
DOA	13	27	12

4 Source Area Removal and Treatment Work Plan

4.1 Project Organization

A general project organization chart is provided as Figure 8. The roles of key participants are described below:

4.1.1 Regulatory

Overview of site activities at the state level is South Carolina Department of Health and Environmental Control (SCDHEC). SCDHEC's contact is Tim Hornosky.

4.1.2 FPE

The primary contact information/role for FPE is *de maximis, inc.*. Bennie Underwood is the project manager. *de maximis, inc.* retains all responsibility to act and coordinate field oversight.

4.1.3 Site Operator

Arcadis is the current site operator. Arcadis will provide Health and Safety oversight and other field support as needed. Arcadis operates the current groundwater extraction and treatment system.

4.1.4 Source Area Removal and Treatment Contractor

A Bid package using functional specifications will be developed and provided to several select regional remedial construction contractors. A prime contractor will be selected to implement the scope of work based on cost, qualification, and technical approach. Source Area Removal and Treatment Contractor's scope of work will include providing engineering support for shoring activities, utility protection, a competent excavation team, erosion and sediment control, identifying potential disposal facilities, and identifying backfill borrow sources.

4.1.5 PWR Treatment Contractor

O&M, Inc. will perform the oxidant addition for PWR treatment, including providing tankage, materials, chemical handling and mixing.

4.1.6 Analytical Laboratory

Post treatment soil analyses will be performed by Pace Environmental or other laboratory approved by SCDHEC. The post treatment soil sampling will be performed by Arcadis or O&M.

5 Scope of Work

5.1 Access

Access to the site is maintained through Star Road and Augusta Road. Site access must be maintained to allow for access to the onsite pump and treatment system. There are three gated entrances that will provide flexibility to maintain access to the groundwater treatment operations. Distances from the excavation/treatment areas to possible public exposure points are 270 feet to the West (Star Road) and 200 feet to the South (Augusta Road).

Additionally, access to adjacent property may be needed during excavation/backfill of the PBDA as it is near the property border. Access agreements will be pursued as necessary.

5.2 Mobilization

Prior to mobilization, selected Contractors (i.e. Excavation/Treatment and Oxidant Addition) will provide detailed Operations Plans to include construction health and safety plans and facility/utility protection shop drawings as more fully described in paragraphs 5.4 and 7.0 below.

5.3 Site Preparation

5.3.1 Location of Subsurface Utilities

Subsurface utilities shall be investigated and marked accordingly. Utilities may be rerouted or protected for excavation activities.

5.3.2 Excavation Limits

Approximate excavation limits shall be staked based on previous investigation and expected location of impacted materials.

5.3.3 Stormwater Protection and Erosion/Sediment Controls

Stormwater protection and Erosion and sediment controls are the responsibility of the Source Area Removal and Treatment Contractor, permitted and performed in accordance with local requirements.

5.3.4 Clearing of Excavation Areas

The DBA and PBDA are mostly grass covered and will require minimal grubbing/clearing. The DOA area is partially a gravel lot and partially under the Manufacturing Building slab. A portion of the slab will need to be demolished and cleared prior to excavation activities. Preservation of the slab is not a priority and does not need to be repaired post-excavation.

5.3.5 Preparation of Treatment Area

The Manufacturing Building slab will serve as the on-site soil treatment area. Inspection of the slab and preparing for soils treatment is the responsibility of the Source Area Removal and Treatment Contractor. Plastic tarps will be laid to cover the area and to assist in soil containment. Clear access from the excavation areas to the slab must be identified and cleared.

An alternative to the open slab, specifically during any forecasted periods of inclement weather, will be the enclosed warehouse adjacent to the GWTS.

5.4 Excavation

The areas are to be excavated to specified limits with the goal of mass removal and preparing the areas for top of bedrock treatment. Visual inspection and PID monitoring will be utilized to make in-field decisions regarding adjusting the excavation limits. Excavated soils will be transported and treated in daily batches in the onsite treatment area. Over-excavated soils will be segregated. Significant clay encountered will also be segregated.

The Source Area Removal and Treatment Contractor will be responsible for providing an Operations Plan detailing the following:

- Stabilization plan for excavation areas including sheeting/shoring and additional protective actions to ensure stability of onsite structures, including shop drawings, as appropriate. This is particularly important for the DBA where the Treatment System Building must be protected. The basis of design, understanding lateral loads on the excavation support system (including earth pressure loads, hydraulic loads, surcharge from equipment/stockpile loads, etc.), is needed. Stabilization plan must also include details for vibration and settlement limits for the adjacent structures.
- A detailed plan for identifying and dealing with onsite subsurface utilities.
- Actions to protect the excavation area from weather events.
- Protection of open excavations during operations.
- Backfill/borrow source identification.
- Construction Health and Safety Plan, including dust and VOC monitoring and provisions for respiratory protection, if required.
- Stormwater and erosion/sediment control plan.
- Waste Management Plan for transportation and disposal for excavation materials requiring off-site disposal, and for PPE and treatment area barriers, including plastic sheeting.
- Backfill and compaction requirements and disposition of shoring
- Other support documentation as deemed necessary by the contractor

5.5 Ex-Situ Soil Treatment

5.5.1 Soil Pile Segregation and Management

After excavation, soils will be transported to the treatment area and segregated into daily piles. Expected pile size is approximately 300 cubic yards. Over excavated and clay soils will be separated as needed. Soil piles will be clearly labeled and measures taken to prevent run-off and to ensure piles do not combine. Piles will be covered at the end of each day.

5.5.2 Soil Aeration and Agitation

Soil piles will be spread into a thin layer to allow for soils to dry. Individual soil piles may be turned or agitated to promote drying. PID readings shall be recorded at the end of each day prior to covering the piles.

5.5.3 Post-Treatment Sampling/Analysis

Following two consecutive days of ND PID readings, non-homogenized samples will be collected from each pile using 5035 "T" Handle method (Appendix B), labeled appropriately and provided to Pace Analytical Laboratories in Columbia, SC, for quick turnaround analysis via USEPA Method 8260D for the specified chlorinated hydrocarbons, 1,2-DCE, PCE, TCE and VC. An alternate method may be to collect five aliquots using SS trowel while wearing new nitrile gloves and place in a disposable bowl, then collect two 5305 "T" samples randomly from the bowl for analysis resulting in two samples per pile. When laboratory analyses confirm soils have been treated to an adequate level to be used as backfill, the soil piles will be combined, bermed and covered until it is time for backfill activities. If soils do not meet backfill criteria, then they will be retreated and resampled or characterized (TCLP) and disposed offsite appropriately.

All soils used for backfill must meet USEPA Regional Soil Screening levels for industrial soils. However, based on the Field Test results, our target for acceptable backfill will be the USEPA Regional Soil Screening levels for groundwater protection as shown on Table 2. For the purposes of this plan, any backfill above the groundwater protection levels will be reviewed with SCDHEC prior to backfilling.

5.6 Amendments to Excavated Area

A persulfate (or equivalent) oxidizer will be applied to the base of the excavations and/or the top of PWR. Amendments will be overdosed with 20% persulfate and NaOH.

5.7 Restoration

5.7.1 Placement of Backfill Materials

Excavated materials are to be used in backfill activities following on-site treatment if they meet the treatment standards. Areas are to be backfilled to existing grade. Contractor shall coordinate off-site backfill materials to be imported to supplement backfill activities if needed. The Contractor shall identify a backfill source and sample/certify. Treated soils and/or approved off-site borrow soils will be placed back into the excavations. The Source Area and Removal Contractor will be responsible for defining compaction requirements based on planned disposition of shoring material. That is, in areas away from buildings and areas where shoring is left in place and capped, minimal compaction will be required. Backfilled areas may be mounded to account for future settling. Backfilling and compaction will be included in the contractor's Operations Plan.

5.7.2 Site Revegetation

Following backfill activities the original grassy areas shall be revegetated with Hydroseed or equivalent. The DOA area will be rocked for future parking lot use.

6 Demobilization

Contractors will remove all their equipment and materials from the site and dispose of material, as appropriate. Site should be left in a restored and usable condition.

7 Permitting

Confirmation with SCDHEC is needed regarding permitting requirements for potential air admissions and oxidizer addition. Based on the approximate 7-month duration with excavation/treatment of source areas occurring in sequence (i.e. DBA then PBDA followed by DOA) and a total estimated VOC loading of 160 lbs, the average estimated VOC emissions will be less than 23 lbs per month. The oxidizer addition will be by gravity flooding to the base of excavations (i.e. not injected).

Permits will be pursued as directed by SCDHEC.

8 Plans

8.1 Source Area Removal and Treatment Site Operations Plan

A detailed Site Operations Plan is to be completed by the selected Source Area Removal and Treatment Contractor and the Oxidizer Contractor to describe specific means and methods used to complete work. At minimum, this document will describe specific means and methods to be used for excavation, necessary sidewall shoring/sheeting, ex-situ treatment, in-situ amendment application, backfill placement/compaction, and waste transport/disposal. Additionally, this document will describe the specific means and methods to be used to monitor vibration and deflection of sheeting/shoring to be protective of adjacent structures, address stormwater collection in open excavations and associated dewatering and water treatment, and stormwater controls on and around excavated soil staging/treatment areas.

8.2 Construction Site-Specific Health and Safety Plan

The Contractors shall also be responsible for preparing a Construction HASP that complies with OSHA 1926 and 1910.120. This shall be overseen by Arcadis. The plan must include protections for the Contractor's workers that perform work at the site during removal and treatment activities. It is not anticipated that respiratory protection will be required, but preparation will be taken.

8.3 Air Monitoring Plan

Site-Specific Air Monitoring for VOCs and dust will be performed by the Contractors to protect workers from exposure to airborne contaminants that may be encountered during removal and treatment activities. The Site is fenced and gated to prevent public access. Because of the distance from the excavation and treatment areas to public access roadways, perimeter monitoring is not anticipated. If worker protection is demonstrated, then potential public exposure will be negligible. For worker protection, PID readings shall be taken at regular intervals in areas where workers are present. If PID reading exceeding 5 ppm are detected, operations are to temporarily cease to allow respiratory protection

implementation prior to resuming operations. Should respiratory protection be required for sustained operations, then downgradient air monitoring will be performed regularly at the potential public exposure points to the south (Augusta Rd) and west (Star Rd) of the Site.

9 Reporting

9.1 Progress Status Communications

Progress Status calls shall be scheduled and completed weekly with the project team and SCDHEC.

9.2 Final Report

A final construction completion report shall be submitted within 90 days of demobilization from the site. The report shall include excavated quantities, sampling results, disposition of all soils, construction documentation, oxidizer volumes and photo logs.

10 Schedule

Schedule adjustments will be made based on weather/field conditions and communication/coordination with SCDHEC. The anticipated construction schedule is provided as Figure 9.

11 Post-Excavation and Treatment Performance Monitoring

Following demobilization, one, pre-pack, Stainless steel monitoring well will be installed in each source area (total of 3) into the PWR for the primary purpose of monitoring oxidant consumption and re-saturation (i.e. pH and water level gauging). Water levels and pH will be monitored at least quarterly. Once the oxidizer is consumed in all 3 source areas, i.e. pH returns to historical norms, then the monitoring of the three new wells will be incorporated into the normal GWTS compliance monitoring program to include obtaining VOC data and the semi-annual reporting. Recharge of the source areas is expected to take up to 7 years. When adequate recharge data are available, the entire site-wide modelling will be reperformed to assess the recharge end point, confirm continued capture by the off-site extraction system and to assess the overall contaminant distribution. The foregoing is expected to occur 1 to 2 years following SART completion, dependent on oxidant depletion. The modelling assessment will be included in the normal GWTS second semi-annual report and summary.

When source area groundwater has re-saturated to historic levels, in consultation with SCDHEC, contaminant levels and distribution will be evaluated along with the off-site extraction system capture evaluation for source area groundwater and in-place institutional controls. If additional treatment is determined to be necessary, then FPE will evaluate treatment options for implementation. Additional treatment options will include, at a minimum:

- Targeted or area-wide in-situ oxidation treatment via injection
- Resumption of source area groundwater extraction with treatment by the GWTS

Tables

Table 1

On-Site Wells Expected to be Removed During Excavation

DBA	DOA	PBDA
EW-5	MW-28	EW-1R
EW-6	MW-53	MW-2
MW-18		MW-3
MW-19		MW-5
MW-22		MW-6
MW-13		MW-7
MW-54		MW-13
PZ1-S		MW-25
PZ1-PWR		MW-51
PZ1-RCK		

Listed wells may need to be in bounds of excavation and must be accounted for

Table 2
Soil Pile Sampling Analytical Results

Area	Location	Soil Pile Analytical								
		7/22/2022 (Day 2)					7/28/2022 (Day 8)			
Drum Burial Area		**Soil Pile Core Depth (ft)**	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride
1	DBA-22	**5'-10' Pile 1**	0.0069 U	0.0071 U	0.0069 U	0.0069 U	0.0064 U	0.0064 U	0.0064 U	0.0064 U
		10'-15' Pile 2	0.0052 U	0.0052 U	0.0052 U	0.0052 U	0.0061 U	0.0061 U	0.0061 U	0.0061 U
		15'-20' Pile 3	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0061 U	0.0061 U	0.0061 U	0.0061 U
Degreasing Operational Area		**Soil Pile Core Depth (ft)**	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride
7	DOA-22	**10'-15' Pile 1**	0.0071 U	0.0071 U	0.0071 U	0.0071 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
		20'-25' Pile 2	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0061 U	0.0061 U	0.0061 U	0.0061 U
		25'-30' Pile 3	0.0073 U	0.0073 U	0.0073 U	0.0073 U	0.0053 U	0.0053 U	0.0053 U	0.0053 U
		Clay Pile 4	0.0070 U	0.0070 U	0.0070 U	0.0070 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U
Former Paint Bed Drying Area		**Soil Pile Core Depth (ft)**	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride	PCE (mg/kg)	TCE (mg/kg)	1,2-DCE	Vinyl Chloride
8	PBDA-22	**5'-10' Pile 1**	0.0056 U	0.0056U	0.0056U	0.0056U	0.0062 U	0.0062 U	0.0062 U	0.0062 U
		15'-20' Pile 2	0.0065 U	0.0031 J	0.0065 U	0.0065 U	0.0064 U	0.0064 U	0.0064 U	0.0064 U
		25'-30' Pile 3	0.0059 U	0.017	0.0059 U	0.0059 U	0.0062 U	0.0062 U	0.0062 U	0.0062 U
		30'-35' Pile 4	0.0061 U	0.0061 U	0.0061 U	0.0061 U	0.0056 U	0.0056 U	0.0056 U	0.0056 U
		35'-40' Pile 5	0.0063 U	0.0025 J	0.0063 U	0.0063 U	0.0060 U	0.0060 U	0.0060 U	0.0060 U

NOTES: Sample locations were identified based on data collected from the 2016 *Phase III Source Area Investigation.*

	:Value exceeds RSL (Both industrial soil and groundwater ssl)	100	6
	:Value exceeds RSL (Groundwater SSL)	0.0023	0.018

U = Not detected at or above the LOQ
J = Estiomated result <LOQ and >= DL
LOQ = Limit of Quantitation
7/20/2022 data is from individual depths
7/22-7/28 data is from combined soil pile depths

Figures

Figure 1

0 4000' 8000'

GRAPHIC SCALE

Approximate Scale: 1 in. = 4000 ft.

SOUTH CAROLINA

REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., EDGEFIELD, SC, ESRI WEBSITE

FORMER FEDERAL PACIFIC ELECTRIC SITE
EDGEFIELD, SOUTH CAROLINA
ANNUAL 2018 SUMMARY REPORT

SITE LOCATION

ARCADIS Design & Consultancy for natural and built assets

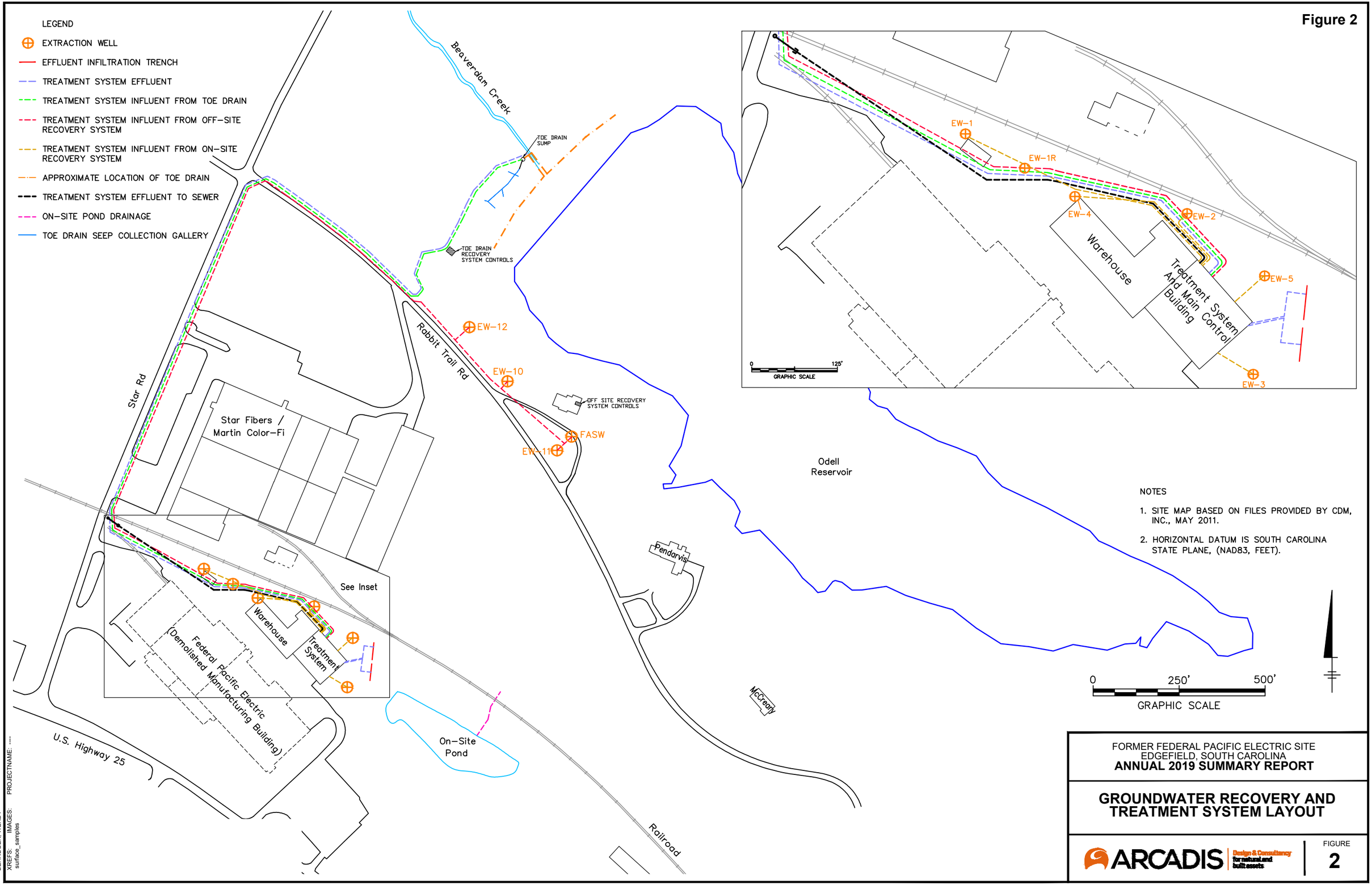
FIGURE 1

CITY: AUGUSTA, GA DIV/GROUP: ENVCAD DB: A. SAUL LD: A. SAUL PIC: PM: TM: LYR: ON=*;OFF=*REF*
C:\BIM\OneDrive - ARCADIS\BIM 360 Docs\EXXONMOBIL\FPE\2019\AS000240.0030.00003\01-DWG\01_AS240B01.dwg LAYOUT: 1 SAVED: 2/9/2016 1:57 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 5/21/2019 9:44 AM BY: BERNDGEN, WENDY
XREFS: IMAGES: PROJECTNAME: ---
USGS-Topo-Edgefield.jpg

Figure 2

LEGEND

- EXTRACTION WELL
- EFFLUENT INFILTRATION TRENCH
- TREATMENT SYSTEM EFFLUENT
- TREATMENT SYSTEM INFLUENT FROM TOE DRAIN
- TREATMENT SYSTEM INFLUENT FROM OFF-SITE RECOVERY SYSTEM
- TREATMENT SYSTEM INFLUENT FROM ON-SITE RECOVERY SYSTEM
- APPROXIMATE LOCATION OF TOE DRAIN
- TREATMENT SYSTEM EFFLUENT TO SEWER
- ON-SITE POND DRAINAGE
- TOE DRAIN SEEP COLLECTION GALLERY



NOTES

1. SITE MAP BASED ON FILES PROVIDED BY CDM, INC., MAY 2011.
2. HORIZONTAL DATUM IS SOUTH CAROLINA STATE PLANE, (NAD83, FEET).

FORMER FEDERAL PACIFIC ELECTRIC SITE
EDGEFIELD, SOUTH CAROLINA
ANNUAL 2019 SUMMARY REPORT

GROUNDWATER RECOVERY AND TREATMENT SYSTEM LAYOUT

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2

(1) Paint Bed Drying Area (PBDA)

(2) Drum Burial Area (DBA)

(3) Degreasing Operational Area (DOA)

FIGURE 3

FPE Edgefield Source Areas

Figure 4

PSMW-07
530.94

LBMW-104
502.71

LBMW-103
515.73

PSMW-04
516.4

RIGHT
TOE DRAIN

LEFT
TOE DRAIN

AMW-05
499.52

EW-12
462.81

EW-10
468.15

RTB-06
515.71

SMMW-09
519.96

LBMW-102
513.27

SMMW-07
518.8

FASW

RTB-03
514.72

EW-11
489.44

Odell
Reservoir

PMW-01
522.9

SMMW-11
525.63

FPSW
538.48

PMW-05
537.42

EW-1R
515.76

SMMW-12
529.04

SMMW-06
524.89

MW-04
540.77

MW-25
500.69

EW-1
545.13

LBMW-101
528.65

EW-4
492.68

EW-2
516.22

MW-54
493.66

MW-09
527.58

PZ2-RCK
540.7

PZ1-RCK

MW-52
496.92

EW-5

MW-53
534.43

MW-32
537.31

EW-3
536.48

MW-34
542.57

MW-50
546.86

On-site
Pond

REMW-01
544.42

505 510 515 520 525 530 535 540 545 500 495

Legend

- NOT MEASURED
- DRY WELL
- TOE DRAIN WELL
- EXTRACTION WELL
- BEDROCK WELL
- LOWER BEDROCK WELL
- ODELL RESERVOIR
- WATER FEATURE
- ROADS
- RAILROADS
- BUILDINGS
- TOE DRAIN
- TRENCH
- WATER LEVEL BELOW TOP OF BEDROCK ELEVATIONS, FEET ABOVE MEAN SEA LEVEL
- ESTIMATED GROUNDWATER RECOVERY SYSTEM CAPTURE ZONE

N W E S

0 100 200 400 Feet

Notes:
1. All locations and dimensions are approximate.
2. Kriging variogram components:
   Linear with anisotropy of ratio = 2, angle = 55,
   and slope = 1. Contour level is at 5 feet
3. PSMW-07 and LBMW-101 elevation not use in water level elevation contouring

NewFields
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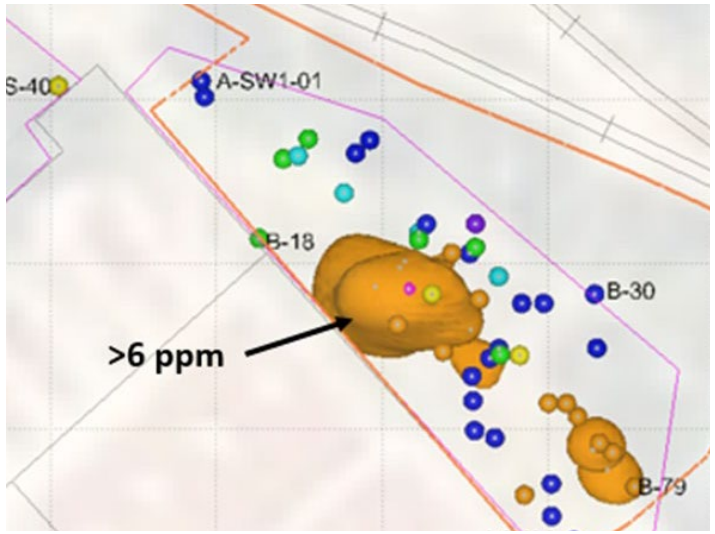
FIGURE 4

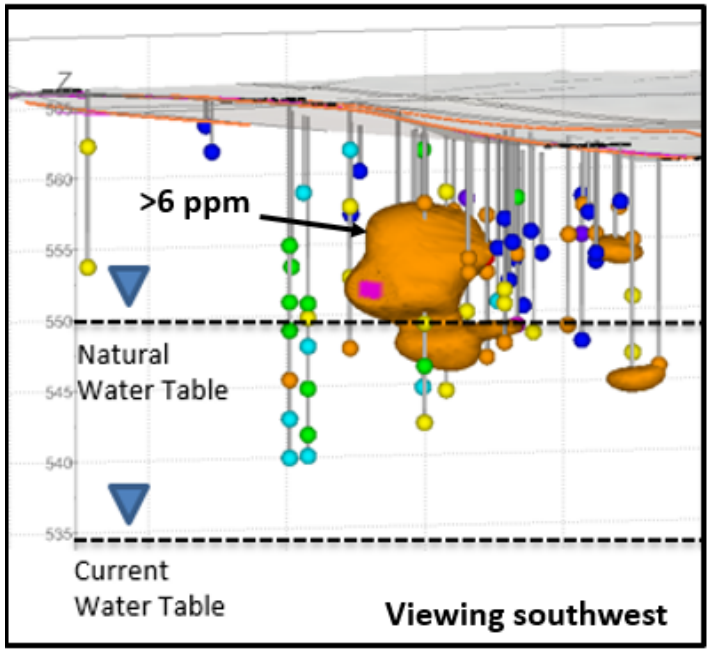
GROUNDWATER RECOVERY SYSTEM
CAPTURE ZONE
SEPTEMBER 2020

Former Federal Pacific Site, Edgefield, South Carolina

Drum Burial Area

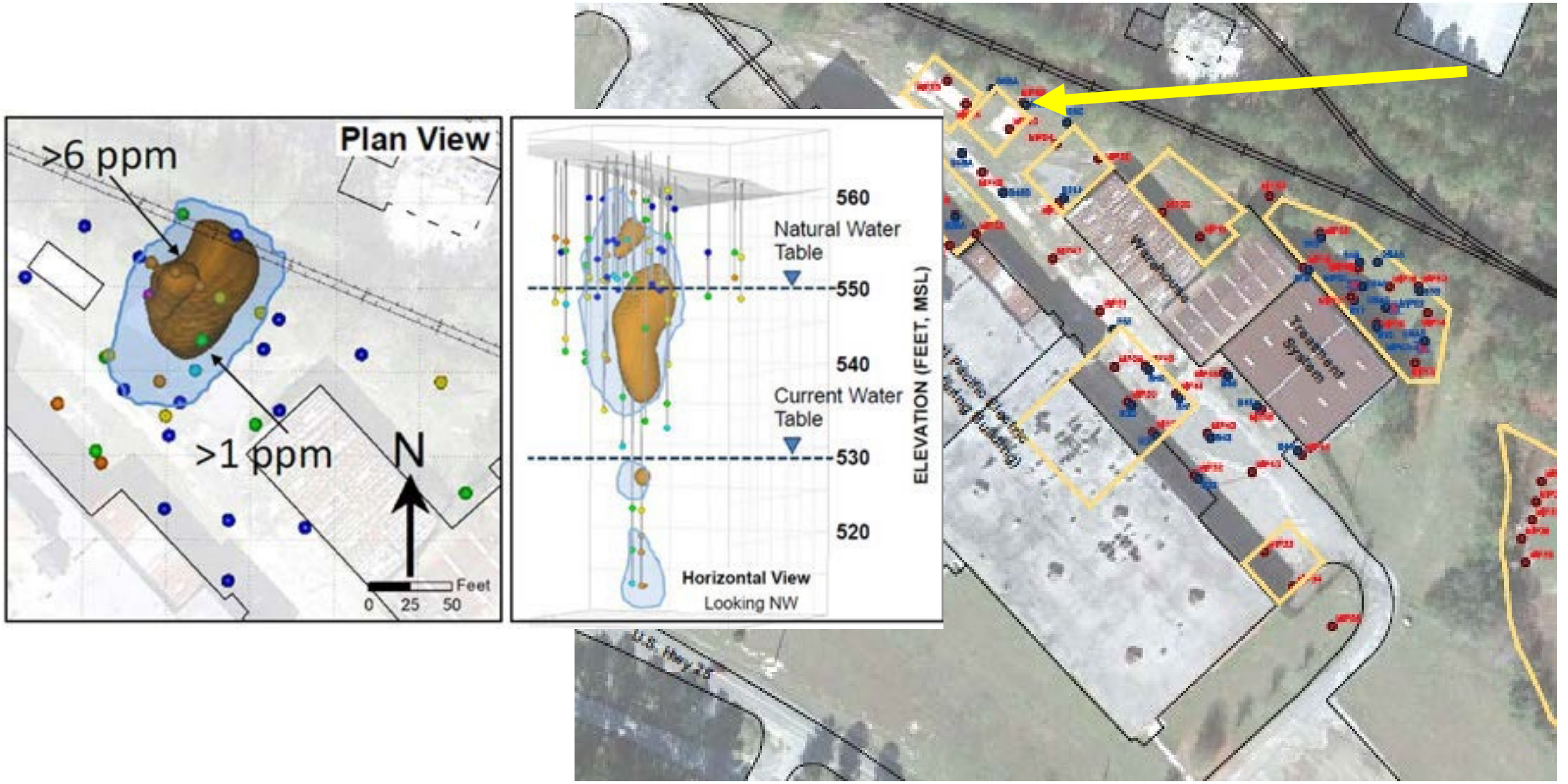
Figure 5





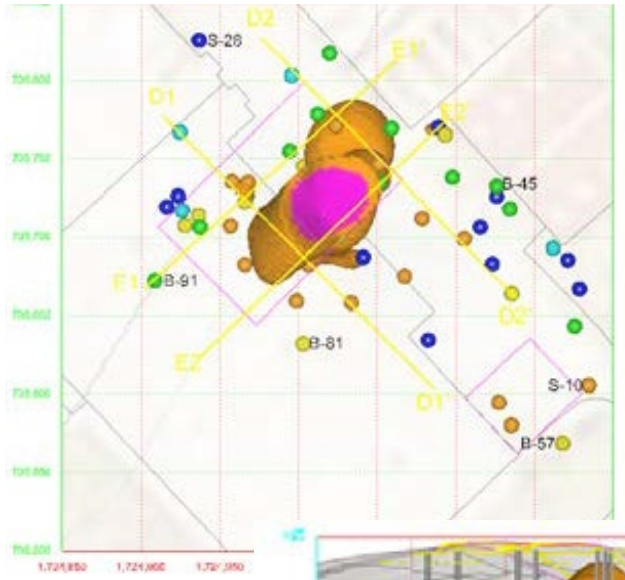
Paint Bed Drying Area

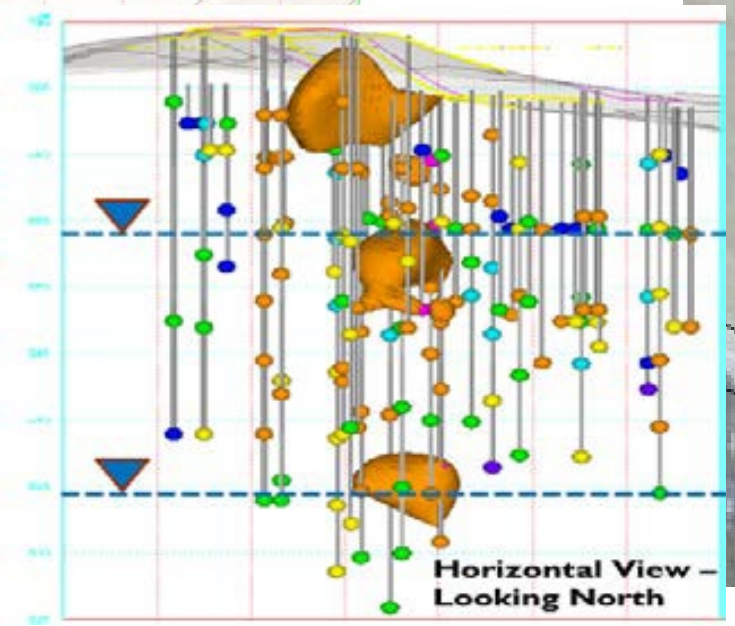
Figure 6



Degreasing Operational Area

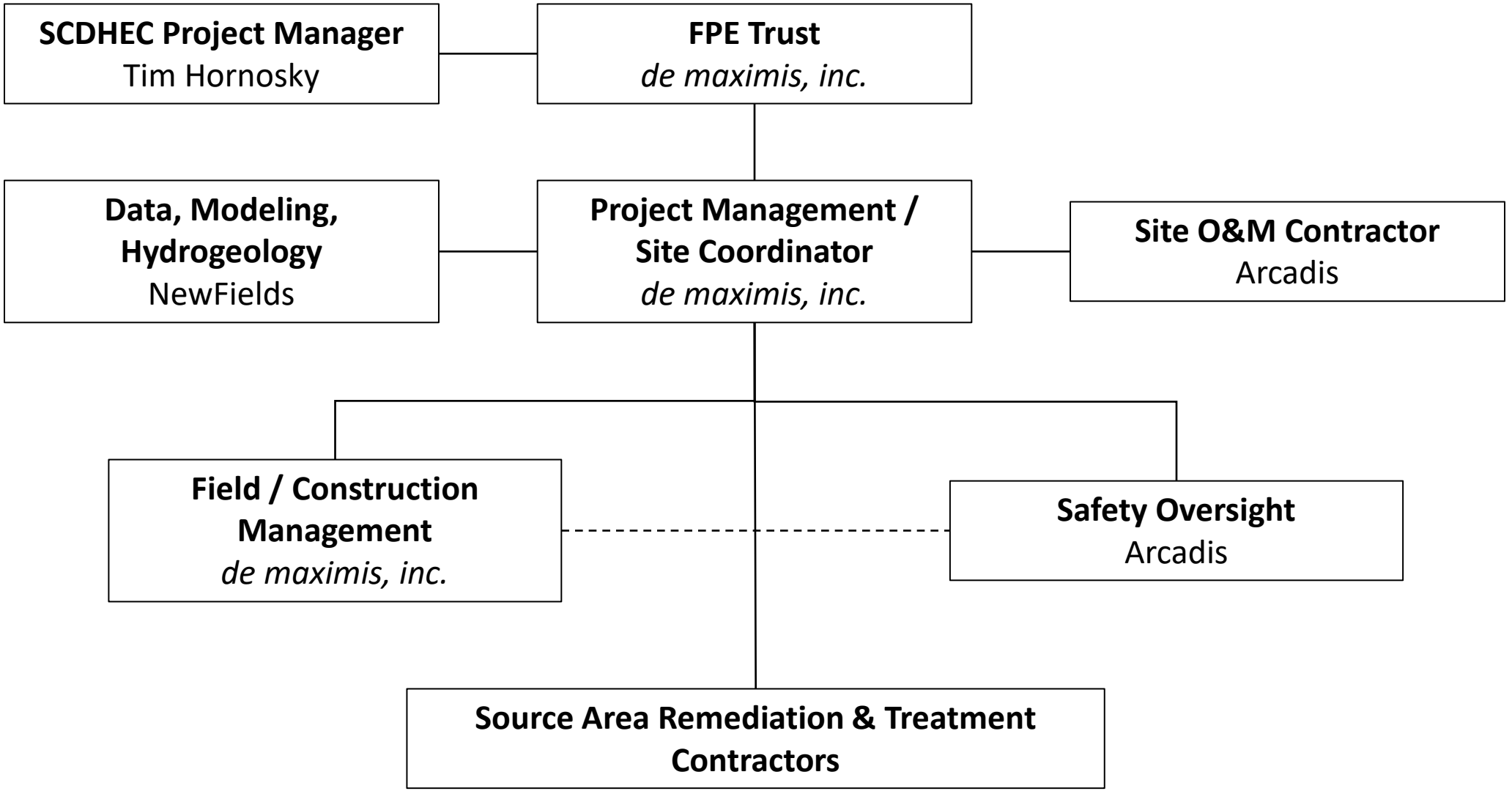
Figure 7





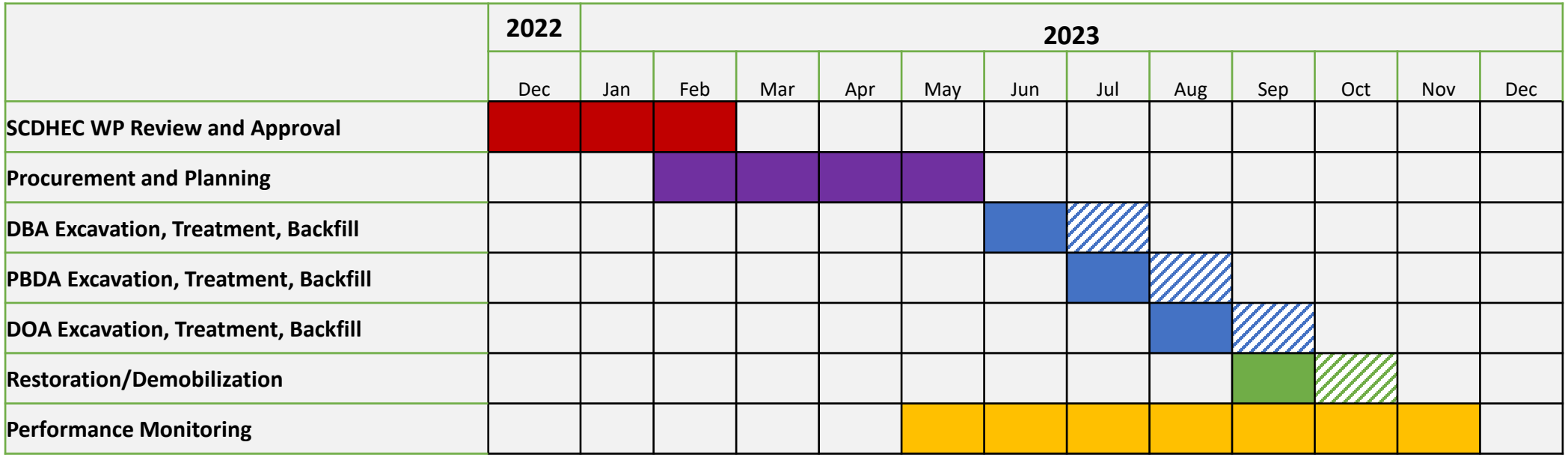
Project Organization

Figure 8



Schedule

Figure 9



APPENDIX A

Source Area Removal and Treatment Field Test Report

[Previously Submitted]

APPENDIX B

VOC Soil Sampling Method 5035 “T” Handle

Pace Analytical	Document Name: VOC Soil Sampling	Page 1 of 1
	Document No.: ME001KQ-03	Issuing Authority: Pace ENV – Local Quality - WCOL

VOC Soil Sampling
5035 "T" Handle Kit Instructions
Please Read Carefully and Follow Instructions

1. **With the plunger seated in the handle, push the syringes into the soil to be collected until the chamber is full. This is approximately 5 grams of soil.**
2. **Remove the Teflon-lined cap from one of the four (4) vials.**
3. **Place the tip of the syringe over the mouth of the vial. Push the plunger to transfer the soil into the vial.**
   Ensure only ONE plug is plunged into each vials.
4. **Replace the cap and seal tightly.**
5. **Repeat Steps 1-4 for remaining vials.**
6. **Label each sample vial with the collection information.**
7. **Place the four (4) sample vials in the bubble bag, remove the adhesive strip and seal the bag.**

VOA 8260D soil kit will come with: **2-40 mL pre-weighed vials with 5ml of DI water** with a stir bar for the low level analysis, **1-40mL pre-weighed vial with 5 mL of methanol** (in case a medium level analysis is needed), **1 40 mL unpreserved vial** (for 5g of sample) for lab screening, **terracore disposal device** (plastic T-handle) and **2 oz. jar** (for % solids).