



July 1, 2022

SUPERB ACCOUNT MAXIMUM ALLOWABLE COSTS

Underground Storage Tank (UST) owners or operators, who are responsible for releases that are qualified to receive monies from the State Underground Petroleum Environmental Response Bank (SUPERB) Account, will be notified when monies are available to perform necessary site rehabilitation actions. Those releases posing the greatest identified risk to human health and the environment will receive funding priority. The classification system that determines the risk and funding priority is outlined in the SUPERB Site Rehabilitation and Fund Access Regulations, R.61-98.

The SUPERB Act requires that all costs for site rehabilitation receive prior approval from the Department of Health and Environmental Control (DHEC). All work is to be performed in accordance with the Quality Assurance Program Plan (QAPP) for the UST Management Division or a DHEC approved, comparable QA plan provided by the owner or operator's contractor. All work should follow the regulations established in the Well Standards, R.61-71. If the UST owner or operator wishes to proceed with site rehabilitation activities for a release that is not currently funded, DHEC has a deferred compensation contract that allows the UST owner or operator to receive approval for reasonable costs at this time with possible future compensation from the SUPERB Account.

Any contractor who performs UST site rehabilitation work in South Carolina must be certified by DHEC. UST owners or operators may select their own site rehabilitation contractor to perform necessary actions in accordance with the criteria and allowable costs established by DHEC. DHEC may use the fund to clean up a release at a site where the UST owner or operator does not qualify for compensation or a site which does qualify but the owner or operator is unwilling or unable to undertake site rehabilitation.

Maximum allowable costs for site assessment, abandonment, product recovery and monitoring components are outlined below.

Established Scopes of Work^{1,3}

See UST Programmatic QAPP for required components

Scope of Work	Southeast Region²	All Other Counties
Initial Ground-Water Assessment	\$4,031.18	\$4,370.38
Tier I Assessment	\$11,687.56	\$12,818.58

Notes:

- (1) For Waste Oil releases, add \$288.00 to the IGWA or \$1,158.00 to the Tier I.
- (2) The Southeast region includes the following counties: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Marion, and Williamsburg.
- (3) If the total well footage exceeds 25 feet for an Initial Groundwater Assessment (IGWA) or 75 feet for a Tier I, the additional footage can be requested for pre-approval at the component rate listed below. Costs associated with sampling of receptors (groundwater wells and surface waters) within a 500-foot radius of the source, sampling for metals associated with a waste oil UST, or other pre-approved costs outside the standard scope shall be submitted on an assessment component invoice with the IGWA or Tier I invoice. As the price for the standard scope includes all project coordination and report preparation costs, a markup or handling fee is not allowed for the additional components added to the IGWA or Tier I invoice.

SUPERB Maximum Allowable Costs Per Component

COMPONENT			UNIT	UNIT COST
A.		Plan Preparation		
	1.1	Site Specific Work Plan	each	\$ 169.65
	2.1	Tax Map	each	\$ 79.17
	3.1	QAPP Contractor Addendum (App. B)	each	\$ 250.00
B.		Receptor Survey *	each	\$ 623.20*
C.		Survey		
	1.1	Comprehensive Survey (500 ft X 500 ft)	each	\$ 1,176.26
	5.	Ground Penetrating Radar Survey (100 ft X 100 ft)	each	\$ 1,029.23
D.		Mobilization/Demobilization		
	1.1	Equipment	each	\$ 1,153.64
	2.1	Personnel	each	\$ 478.42
	3.1	Adverse Terrain Vehicle	each	\$ 565.51
E.	1.	Soil Borings(Hand Auger) *	per foot	\$ 5.66*
F.		Soil Borings (requiring equipment, push technology, etc.) or Field Screening (including sampling and analysis) *		
	1.1	Standard	per foot	\$ 16.97*
	2.1	Fractured Rock	per foot	\$ 21.84*
H.		Well Abandonment (does NOT include Field Screening) *		
	1.1	Abandonment of 2" or smaller diameter well	per foot	\$ 3.51*
	2.1	Abandonment of 2-6" diameter well	per foot	\$ 5.09*
	3.1	Dug/bored well (up to 6 ft. diameter)	per foot	\$ 16.96*
I.		Well Installation (in accordance with R.61-71) *		
	1.1	Shallow monitoring wells installed using a hand auger	per foot	\$ 11.99*
	2.A	Single-cased 2" Diameter Monitoring Well (0-50 ft.)	per foot	\$ 42.98*
	2.1	Single-cased 2" Diameter Monitoring Well (>50 ft.)	per foot	\$ 43.46*
	3.1	Telescoping Well	per foot	\$ 56.55*
	4.1	Rock Well Drilling	per foot	\$ 65.60*
	5.1	2" Rock Coring and retrieval	per foot	\$ 34.95*
	6.1	Multiple sampling ports/screens	per foot	\$ 37.78*
	7.1	Recovery Well (4" diameter well)	per foot	\$ 50.90*
	9.1	Rotosonic (2" diameter_well)	per foot	\$ 49.77*
	10.1	Re-develop Existing Well	per foot	\$ 12.44*
J.		Sample Collection/Gauging Depth to Water/Product *		
	1.1	Groundwater Purge	per well	\$ 67.86*

2.1	Air or Soil Vapor Sample	per sample	\$ 13.57*
3.1	Water Supply Sample	per sample	\$ 24.88*
4.1	HydraSleeve	per sample	\$ 53.00*
4.2A	No-purge Groundwater Sample/ Surface Water	per sample	\$ 31.67*
5.1	Gauge Well Only	per well	\$ 7.92*
6.1	Sample Below Product	per sample	\$ 13.57*
7.1	Passive Diffusion Bag	per sample	\$ 29.40*
8.1	Field Duplicates (MWs & WSWs) and Field Blank	per sample	\$ 27.83*
9.1	Groundwater (Low-flow Purge)	per sample	\$ 102.93*
10.1	Equipment Blank	per sample	\$ 27.83*
11.	Sample Product	per sample	\$ 48.76*
K.	Laboratory Analyses-Groundwater		
1.1	BTEXN, MTBE including 8-Oxygenates and 1,2-DCA (8260D)	per sample	\$ 137.98
2.1	Dissolved Lead (6010D or 6020B)	per sample	\$ 15.60
3.1	BTEXN, MTBE including 8-Oxygenates and 1,2-DCA (8260D) RUSH	per sample	\$ 173.72
4.1	Trimethyl, Butyl, and Isopropyl Benzenes (8260D)	per sample	\$ 31.67
5.1	Polynuclear Aromatic Hydrocarbons (PAHs) (8070E)	per sample	\$ 68.54
6.1	Total Lead (6010D or 6020B)	per sample	\$ 18.09
7.1	EDB by (8011)	per sample	\$ 51.12
8.1	EDB by 8011 RUSH	per sample	\$ 77.14
9.1	RCRA 8 Metals	per sample	\$ 71.71
10.1	TPH - Oil and Grease (9070)	per sample	\$ 46.38
11.1	pH (Lab)	per sample	\$ 5.88
12.1	BOD	per sample	\$ 22.62
13.1	Ethanol - (8015)	per sample	\$ 16.74
K.	Laboratory Analyses-Drinking Water (Water Supply Wells)		
14.1	BTEXN, MTBE, and 1,2-DCA (524.2)	per sample	\$ 140.30
15.1	8-Oxygenates (8260D)	per sample	\$ 103.77
16.1	EDB (504.1)	per sample	\$ 89.92
17.1	RCRA 8 Metals	per sample	\$ 113.10
K.	Laboratory Analyses-Soil		
18.1	BTEXN (8260D)	per sample	\$ 72.39
19.1	PAHs (8270E)	per sample	\$ 72.43
20.1	8 RCRA Metals	per sample	\$ 63.79
21.1	TPH-DRO (3550C/8015C)	per sample	\$ 45.24
22.1	TPH-GRO (5035B/8015C)	per sample	\$ 40.67
23.1	Grain Size/Hydrometer	per sample	\$ 117.63

	24.1	Total Organic Carbon	per sample	\$ 34.61
K.		Laboratory Analysis-Air		
	25.	BTEXN (TO-15)	per sample	\$ 244.30
K.		Hydrocarbon Fuel Identification		
	27.	C3-C44 Whole Oil (ASTM D3328)	per sample	\$ 431.42
	28.	Fuel Oxygenates (1624 Mod)	per sample	\$ 368.88
	29.	ALKYL Leads, EDB MMT (8080)	per sample	\$ 368.88
	30.	C8-C40 Full Scan (ASTM 5739)	per sample	\$ 583.00
	31.	Simulated Distillation (ASTM 2887)	per sample	\$ 368.88
	32.	Parent & Alk. PAH Com. (8270 SIM)	per sample	\$ 670.03
	33.	C3-C10 Piano (8260 Mod)	per sample	\$ 555.44
	34.	C10+ Alkane Fingerprint (ASTM 3328)	per sample	\$ 555.44
	35.	Expert Data Interpretation & Report	Each	\$ 551.20
L.		Aquifer Characterization *		
	1.1	Pumping Test	per hour	\$ 26.01*
	2.1	Slug Test	per test	\$ 216.03*
	3.1	Fractured Rock	per test	\$ 113.10*
M.		Free Product Recovery Rate Test *		
			each	\$ 42.98*
O.		Risk Evaluation		
	1.1	Tier 1 Risk Evaluation	each	\$ 339.31
	2.1	Tier 2 Risk Evaluation	each	\$ 113.10
P.	1.	Subsequent Survey *		\$ 275.60*
Q.		Disposal		
	1.1	Wastewater	gallon	\$ 0.64*
	2.1	Free Product	gallon	\$ 0.56*
	3.1	Soil Treatment/Disposal	ton	\$ 67.86*
	4.1	Drilling Fluids	gallon	\$ 0.48*
R.		Miscellaneous (attach receipts)		each Actual Cost
S.		Report Preparation/Project Coordination (non-standard scopes)		Percent 12% of total
T.		Tier I Assessment		Standard
	1.1	Southeast Region	Each	\$ 11,687.56
	2.1	All other counties	Each	\$ 12,818.58
U.		Initial Groundwater Assessment		Standard
	1.1	Southeast Region	Each	\$ 4,031.18
	2.1	All other counties	Each	\$ 4,370.38
V.		Active Corrective Action		PFP Bid Cost
W.		AFVR		
	1.1	8-hour event *	per event	\$ 1,655.00*
	2.	24-hour event *	per event	\$ 4,081.28*
	3.	48-hour event *	per event	\$ 6,706.10*
	4.	96-hour event *	per event	\$ 13,409.52*

	5.	Off-gas Treatment 8-hour	per event	\$ 130.71
	6.1	Off-gas Treatment 24-hour	per event	\$ 272.50
	7.1	Off-gas Treatment 48-hour	per event	\$ 357.50
	8.	Off-gas Treatment 96-hour	per event	\$ 832.26
	9.	Off-gas Treatment 8-hour (w/chlorinated compounds)	per event	\$ 430.00
	10.	Off-gas Treatment 24-hour(w/chlorinated compounds)	per event	\$ 500.00
	11.	Off-gas Treatment 48-hour(w/chlorinated compounds)	per event	\$ 1,000.00
	12.	Off-gas Treatment 96-hour(w/chlorinated compounds)	per event	\$ 2,000.00
	13.1	AFVR Effluent Disposal (w/chlorinated compounds)	gallon	\$ 0.59
	14.1	AFVR Site Reconnaissance	each	\$ 280.00
	15.	Additional Hook-ups	each	\$ 27.48
	16.1	AFVR Effluent Disposal	gallon	\$ 0.49
	17.1	AFVR Mobilization/Demobilization	each	\$ 720.00
W.	18.	Mobilization for absorbents/skimmers	each	\$ 531.25
	19.	Well sock 2" ID well	each	\$ 34.20*
	20.	Well sock 4" ID well	each	\$ 45.40*
	21.	Pad (per pad)	each	\$ 46.25*
	22.	3" diameter x 10' length boom	each	\$ 100.00*
	23.	5" diameter x 10' length boom	each	\$ 123.00*
	24.	New FPP recovery skimmer (2" wells)	each	\$ 732.50*
	25.	New FPP recovery skimmer (4" wells)	each	\$ 1,155.00*
	26.	Refurbished FPP recovery skimmer (2" or 4" wells)	each	\$ 704.00*
	27.	Disposal of Absorbents	pound	\$ 3.80
	28.	Disposal of product from skimmers	gallon	\$ 0.46
X.		Granular Activated Carbon (GAC) filter system		
	1.1	New GAC system installation *	each	\$ 2,148.94*
	2.1	Refurbished GAC system installation *	each	\$ 1,017.92*
	3.1	Filter removal/replacement *	each	\$ 395.86*
	4.1	GAC system removal, cleaning, and refurbishment *	each	\$ 311.04*
	5.1	GAC system housing *	each	\$ 282.76*
	6.1	In-line particulate filter	each	\$ 169.65
	7.1	Additional piping with fittings	foot	\$ 1.70
Y.		Well Repair		
	1.1	Additional copies of Report	each	\$ 56.55
	2.1	Repair 2x2 monitoring well pad *	each	\$ 56.55*
	3.1	Repair 4x4 monitoring well pad *	each	\$ 99.53*

4.1		Replace well vault *	each	\$ 133.46*
5.1		Replace well cover bolts	each	\$ 2.94
6.1		Replace locking well cap & lock	each	\$ 16.96
7.1		Replace/Repair stick-up *	each	\$ 151.56*
8.1		Convert flush-mount to stick-up *	each	\$ 169.65*
9.1		Convert Stick-up to Flush-mount *	each	\$ 147.03*
10.1		Replace missing/illegible well ID plate	each	\$ 13.57
11.1		Down-hole camera	per foot	\$ 27.08
Z.		High Resolution Site Characterization		
1.		HRSC Screening Equipment Mobilization	each	\$ 1,360.00
2.		HRSC Drilling Category 1	per foot	\$ 29.00
3.		HRSC Drilling Category 2	per foot	\$ 33.50
4.		HRSC Drilling Category 3	per foot	\$ 27.00
5.		HRSC 3-D Model	each	\$ 4,040.00

*The appropriate mobilization cost may be added to complete these components, as necessary.

Description of SUPERB Allowable Cost Components

A. **PLAN PREPARATION** - includes all personnel, equipment, and material costs associated with the preparation and submittal of a Site-Specific Work Plan (SSWP) or QAPP Contractor Addendum (Appendix B) along with Tier II Assessment, well abandonment, monitoring, or other plan requested by the DHEC. One personnel mobilization may be allowed if deemed appropriate to conduct a survey of site conditions prior to plan preparation. If obtaining and reporting of tax map information is warranted to prepare the plan, addition of the tax map rate (A.2) may be allowed. The QAPP Contractor Addendum (Appendix B) rate (A.3) may be used until the contractor's Annual Contractor Quality Assurance Plan (ACQAP) has been approved; after which the SSWP rate (A.1) will apply.

1.1 **Site-Specific Work Plan** -two maps are to be included as part of the SSWP (DHEC Form 0653). A topographic map showing the location of the facility and all potential receptors within 1,000 feet of the facility and a drill plan on a site map showing the location of any existing monitoring wells and recovery wells and the locations of proposed screening points (shallow and deep). Any screening points that may be installed into rock will be annotated. A proposed cost agreement listing the units of each item and the costs shall be included.

2.1 **Tax Map** - one tax map with subject site, known impacted properties and the property owners' names and property addresses. Maps printed from online sources are acceptable as long as resolution is adequate for legibility. It is suggested that the tax map be acquired before the SSWP to facilitate property access required for the assessment activities.

3.1 **QAPP Contractor Addendum-** If the contractor is not ACQAP certified, site rehabilitation activities should be presented in a QAPP Contractor Addendum according to the format found available in QAPP Appendix B.

B. 1 **RECEPTOR SURVEY** - includes all personnel, equipment, and material costs associated with the location, documentation (on an approximately scaled site map), and screening of all potentially impacted receptors within 1,000 feet of the facility being investigated. A receptor survey including the location of all private and public water supply wells (drinking and non-drinking) and other potential receptors as defined in the Risk Based Corrective Action (RBCA) Process (i.e., utilities, surface waters, wetlands, basements) within a 1,000-foot radius of the site. Screening means semi-quantitative measurement for hydrocarbons using properly calibrated field instruments such as organic vapor analysis, immunoassay, etc. One personnel mobilization may be added to this component if it is conducted independently of other components.

C. **SURVEY** -includes all personnel, equipment, and material costs associated with the spatial location (both horizontal and elevations) of all existing and former underground storage tanks, lines, dispensers, above and below ground structures, and potential receptors (identified during the receptor survey).

1.1 **Comprehensive Survey** - must be conducted by a Professional Land Surveyor, holding a current SC license. The report will include a plat or map signed or certified by the Professional Land Surveyor. The cost for travel to and from the site by the Professional Land Surveyor and completion of the map are included in the rate. Additional mobilization may not be added to this component. One comprehensive survey will be allowed for each 500 ft. by 500 ft. area (250,000 square feet). Additional surveys may be allowed for each additional 500 ft. by 500 ft. area.

5. **Ground Penetrating Radar Survey** - supplement comprehensive surveys, or as a means to locate suspected underground structures, such as USTs. GPR Surveys include the field work required to provide the GPR data, professional interpretation of the data, and presentation of the results in a report, summarizing the activities and results, including a figure that graphically illustrates the results. GPR surveys will be reimbursed in 100 ft. X 100 ft. (10,000 ft²) increments. Additional GPR surveys may be allowed for each additional 100 ft. by 100 ft. area.

D. **MOBILIZATION / DEMOBILIZATION**

1.1 **Equipment Mobilization** -for drilling or field screening includes all personnel, equipment, mileage, and material costs to transport drilling rig, materials, and personnel to and from the site to include all hotel, motel, meals, and other per diem costs. One mobilization may be allowed to conduct the field screening using direct push equipment and a second equipment mobilization may be allowed for the drilling rig to install permanent monitoring wells. Additional equipment

mobilizations will not be allowed for mobilization of drilling support trucks or equipment (e.g. skid-steer loader, dump trailer, etc.). More than two equipment mobilizations at any site shall require written justification and pre-approval by DHEC for payment. If the professional that will oversee field screening or well installation is not associated with the well driller's firm or company or is associated with the well driller's firm or company but mobilizes from a different town, a personnel mobilization shall be allowed in addition to the equipment mobilization. If more than two equipment mobilizations are anticipated for a site, proposal and justification shall be included in the Plan. If the vertical and horizontal extent of chemicals of concern is not fully defined by the Tier II Report, DHEC may not approve additional future mobilizations for additional screening or well installation.

2.1 Personnel Mobilization-includes all personnel travel time, per diem, hotel, motel, food, mileage, equipment, and material costs associated with completion of site activities that do not include drilling or field screening equipment mobilization described above. As many components as possible should be conducted simultaneously so that unnecessary personnel mobilizations are not conducted (e.g., aquifer testing can be completed during the same mobilization event as ground-water sample collection, subsequent survey, or a receptor survey). Additional mobilizations shall not be allowed for several persons or multiple vehicles all going to the site at the same time. The component number for each personnel mobilization event shall be shown on the assessment component cost proposal form. This rate includes all tools necessary to locate/access existing sampling points or receptors (e.g., metal detectors, brush axes, machetes, etc.).

3.1 Adverse Terrain Vehicle Mobilization- (deemed justifiable due to adverse field conditions, e.g., wooded, or hilly terrain) includes all personnel, equipment, mileage, and material costs associated with transporting equipment, materials, and personnel to and from the site deemed necessary to conduct field screening, drilling, sampling, or other activities. The rate may be in addition to the equipment mobilization described above.

E. 1 SOIL BORINGS/FIELD SCREENING (Hand Auger) - includes all personnel, equipment, and material costs associated with the advancement of temporary borings/wells, collection of soil, gas, or water samples, and analysis of the samples using a suitable analytical method of the contractor's choosing (e.g., off-site laboratory, field laboratory, field test kit, etc.), and completion of geologist logs and DHEC Form 1903 (well record). If the professional that will oversee field screening or well installation is not associated with the well driller's firm or company or is associated with the well driller's firm or company but mobilizes from a different town, a personnel mobilization shall be allowed in addition to the equipment mobilization. Boring or screening logs shall indicate the name and registration number of the Certified Well Driller holding a current SC License, and whether installation was by hand auger or machinery (e.g., drill rig, direct push technology).

Any screening point converted to a permanent monitoring well will be compensated only for the installation of the permanent well at the higher well rate. This rate is on a per foot basis.

F. **SOIL BORINGS/FIELD SCREENING (requiring equipment, push technology, etc.) or Field Screening (including sampling and analysis)** - includes all personnel, equipment, and material costs associated with the advancement of temporary borings/wells, collection of soil, gas, or water samples, and analysis of the samples using a suitable analytical method of the contractor's choosing (e.g., off-site laboratory, field laboratory, field test kit, etc.), and completion of geologist logs and DHEC Form 1903 (well record). If the professional that will oversee field screening or well installation is not associated with the well driller's firm or company, or is associated with the well driller's firm or company but mobilizes from a different town, a personnel mobilization shall be allowed in addition to the equipment mobilization. Boring or screening logs shall indicate the name and registration number of the Certified Well Driller holding a current SC License, and whether installation was by hand auger or machinery (e.g., drill rig, direct push technology). Any screening point converted to a permanent monitoring well will be compensated only for the installation of the permanent well at the higher well rate.

1.1 **Standard Soil Boring/Field Screening**- all borings and field screening that are advanced through overburden soils, including the field screening sample and field or laboratory analysis, on a per foot of final boring or screening point depth basis.

2.1 **Fractured Rock Screening**-will use methods to identify individual fractures or zones containing a series of fractures. Fractures may be identified by use of calipers, gamma logs, temperature sensors, flow sensors, video cameras or other in-bore methods and techniques. The rate includes all costs for locating and reporting all fractures 0.01 foot or larger, the orientation of the fractures in an individual boring, and collating fractures over the entire site if multiple wells or borings are logged at the site. The method(s) used, and the results will be submitted to the appropriate project manager to determine screen locations in the core hole or if the core hole should be abandoned. This information will be included in the Tier II report. Cost is reimbursed on a per final foot of rock boring basis.

H. **ABANDONMENT**- includes all personnel and material costs associated with the proper abandonment of temporary or permanent monitoring wells or borings with a borehole diameter exceeding one inch. One equipment mobilization may be added to this component. Photo documentation of each abandoned well is required.

1.1 **Abandonment of two inch or lower diameter well** - removal of the well vault or stick up, and restoration of the surface area, on a per foot of abandoned well depth basis.

2.1 **Abandonment of two to six-inch diameter well** - removal of the well vault or stick up, and restoration of the surface area, on a per foot of well depth basis.

3.1 **Dug/Bored Well up to 6 ft. diameter** - removal of the well vault or stick up, and restoration of the surface area, on a per foot of well depth basis.

- I. **WELL INSTALLATION** - includes all personnel, equipment, and material costs associated with the installation of permanent water table wells, rock wells, and telescoping wells under the direct supervision of a certified well driller holding a current SC License, description of soil lithology, screening for volatile organic chemicals, properly development of the well, determination of depth to groundwater and free product, containerization of all generated drill cuttings and development/purge waters, and completion of geologist's log and well construction logs. **It is the responsibility of the contractor and driller to propose and utilize a drilling method that is appropriate for the geologic conditions encountered at any given site (e.g., air rotary, continuous flight auger, direct push, mud rotary, roto sonic, etc.).** If the professional that will oversee well installation is not associated with the well driller's firm or company or is associated with the well driller's firm or company but mobilizes from a different town, a personnel mobilization shall be allowed in addition to the equipment mobilization. A separate mobilization is not allowed for well drilling or other support trucks. A single per-foot rate will be charged for each drilled well (e.g., a well drilled 20 feet in saprolite and 20 feet in bedrock will be considered 40 feet of rock drilling with only one equipment mobilization). A completed DHEC Form 1903, or similar form, shall indicate the method of well installation. (<https://www.scdhec.gov/sites/default/files/Library/D-1903.pdf>)

1.1 **Shallow monitoring wells installed using a hand auger** - typically utilized in locations where the water table is shallow (<10 ft.) and accessibility for a standard drill rig is difficult or impossible (e.g., stream banks, wetlands, etc.) on a per foot of well depth basis.

2.A **Single-cased 2" Diameter Monitoring Well (0-50 ft.)** - installed using drilling method appropriate to the geologic conditions to bracket the water table or below the water table in areas of the plume where well construction activities are not likely to cause cross contamination or interconnection between discrete aquifers separated by confining units on a per foot of well depth basis.

2.1 **Single-cased 2" Diameter Monitoring Well (>50 ft.)**- installed using drilling method appropriate to the geologic conditions below the water table in areas of the plume where well construction activities are not likely to cause cross contamination or interconnection between discrete aquifers separated by confining units on a per foot of final well depth basis.

3.1 **Telescoping Well** -should be installed inside a grouted outer casing that extends into an aquitard or bedrock. Will be reimbursed on a per foot of final well depth

basis.

4.1 Rock Drilling -monitoring well installed in rock using a drilling method appropriate to the geologic conditions where some or all the well is in bedrock. Wells may be installed using methods that do not allow the retrieval of bedrock cores under this line item. Rock wells are often installed as telescoping wells and grouted from the surface into the top of bedrock. The well is then finished through the grouted casing to prevent cross contamination or interconnection between fractures.

5.1 Two-inch rock coring and retrieval - if bedrock is encountered during screening or installation of monitoring wells, the contractor may propose to the appropriate project manager installation of a casing from the surface to the top of the bedrock and drilling into the bedrock and extracting an oriented core. The core will be used to determine the location and orientation of fractures in the rock. To reduce the possibility of cross contamination, tests to determine the size of fractures and flow velocities should be conducted as soon as practical. The coring cost will include logging of the core, reporting the percent of core recovered, location and orientation of fractures, and correlation of these fractures to adjacent wells if installed. The rock coring cost may include the installation of a bedrock well following core retrieval. A separate cost will be allowed to install screening at various intervals to allow for sampling from discrete fracture zones, as specified below in I.6.

6.1 Multiple Sampling Ports/Screens – installation of a monitoring well with ports or screens at various intervals to allow for sampling from discrete zones. A packer or other seal must be installed below each screened interval to ensure each fracture zone is hydraulically segregated. For example, if the core hole will be completed for sampling in three separate zones with screens from 245 to 250 feet, 195 to 200 feet, and 145 to 150 feet the contractor would be compensated for installing a total of 600 feet of multi-sampling ports.

7.1 Recovery Well – installation of 4” diameter wells, typically with varying screen depths, as determined by site conditions, to allow for extraction of free phase and vapor phase petroleum on a per foot of final well depth basis.

9.1 Rotasonic Drilling – installation of a 2” diameter monitoring well using rotasonic methods, including all support equipment on a per foot of final well depth basis.

10.1 Re-Develop Existing Well – should follow the contractor’s ACQAP. The development method used is at the discretion of the SC Certified Well Driller and must be capable of removing enough formation materials from the filter pack and well casing to provide relatively sediment-free water samples that are typical of the aquifer. A well development method should be specified on the Well Development Log (DHEC Form 2099, <http://www.scdhec.gov/library/D-2099.pdf>)

which is to be completed during the development process and submitted in the report. Disposal of water produced during well development will be disposed of on a per gallon basis as IDW below as item Q.1. The cost of well re-development is based on the well length on a per foot rate.

J. **SAMPLE COLLECTION/GAUGING DEPTH TO PRODUCT OR GROUNDWATER**- includes all personnel, equipment, and material costs associated with collection of groundwater samples using the methods referenced below, and shipment to an SC-certified laboratory. The collection cost includes all instruments required to complete well purging if required. **This component does not include collection of samples for field screening.** Soil sample collection rates are included in the boring, screening, or well rates.

1.1 **Volumetric Groundwater Purge** – groundwater sample is collected from the well following a purge of at least three well casing volumes of water. It may be necessary to purge additional volumes if parameters have not stabilized.

2.1 **Air or Soil Vapor Sample** - must be collected in a metal SUMMA canister according to laboratory requirements.

3.1 **Water Supply Well Sample**- rate includes all equipment necessary for the collection of water supply well samples upstream from any filtration device following an appropriate purge.

4.1 **HydraSleeve**- is a “no purge” sampling method that can target specific intervals within the screen. The rate includes materials and the collection of water samples from monitoring wells.

4.2 **No-Purge Groundwater Sample / Surface Water Sample** - the “no purge” rate will apply for collection of water samples from monitoring wells without purging, and collection of surface water samples.

5.1 **Water Level Gauging** – The gauge only rate includes all personnel, equipment, and materials necessary to determine the depth to groundwater and/or free product when no sample is collected.

6.1 **Sample Below Product** – If free phase product is encountered in any well, the DHEC UST Management Division Project Manager may request collection of a groundwater sample from below the free product. The following procedure will be used: Measure the thickness of free product. Using a bailer or pump remove the free product being as careful as possible not to mix product and groundwater. As soon as all product is removed, collect a groundwater sample with a clean bailer minimizing emulsification or incorporation of free product into the sample container.

- 7.1 **Passive Diffusion Bag (PDB)** – if a PDB is used, the bag must remain in the well for a minimum of two weeks, or longer, if recommended by the manufacturer. Additionally, the manufacturer must certify that the PDB is capable of collecting a sample representative of all CoCs requested by the DHEC UST Management Division Project Manager.
- 8.1 **Field Duplicates (MWS and WSWs) and Field Blank** – field duplicates will include all duplicates necessary for monitoring wells, surface waters and water supply wells. Field blanks should be collected at a rate of one per day of sampling at a Site using uncontaminated distilled/deionized water.
- 9.1 **Low Flow Purge Groundwater Sample** – Rate includes all equipment and personnel necessary to collect groundwater samples following a low flow purge.
- 10.1 **Equipment Blank**–should be collected at a rate of one per day of use per Site when utilizing a submersible pump(s) that requires decontamination prior to each sampling location for groundwater/surface water sampling.
- 11.1 **Sample Product** – Includes the collection of light non-aqueous phase liquid (LNAPL) from above the water table using an appropriate sampling technique (e.g. bailer or peristaltic pump).
- K. **ANALYSES**- include all personnel, equipment, and material costs associated with analysis by a SC Certified Laboratory and reporting of the results using appropriate chain of custody, field notes, and certificates of analysis. Chain of custody and field notes must be included with the final report. The oxygenates are: ethanol, ethyl tert-butyl alcohol (ETBA), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), diisopropyl ether (DIPE), methyl tert-butyl ether (MTBE), tert-butyl formate (TBF), tert-butyl alcohol (TBA), and tert-amyl alcohol (TAA). The eight (8) RCRA metals are: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. Rush analysis will be 24-hour turnaround by the laboratory, with written results provided to the UST project manager within 48 hours of sample collection. Mobilization may not be added to this component.

Drinking water analytical methods are for use on residential or public water supplies and (at the discretion of the DHEC project manager) other potential sources of drinking water (e.g., irrigation wells). These methods are not to be used for analysis of surface waters or environmental groundwater samples.

K. **Laboratory Analysis - Groundwater**

- 1.1 **BTEXN, MTBE including 8-Oxygenates and 1,2, DCA (8260D)** -cost for water sample analysis for Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene, (BTEXN), Methyl tert-butyl Ether, the 8-Oxygenates, and 1,2-Dichloroethane by EPA Method 8260D.

2.1 **Dissolved Lead (6010D or 6020B)**– cost for a water sample analysis for lead following filtration by EPA method 6010D or 6020B.

3.1 **BTEXN, MTBE including 8-Oxygenates and 1,2, DCA (8260D) RUSH** –cost for water sample analysis for BTEXN, Methyl tert-butyl Ether, the 8-Oxygenates, and 1,2-Dichloroethane by EPA Method 8260D within 24 hours of sample receipt by analytical laboratory.

4.1 **Trimethyl, Butyl, and Isopropyl Benzenes (8260D)** – cost for water sample analysis for Trimethyl, Butyl, and Isopropyl, and the Oxygenates by EPA method 8260D.

5.1 **Polynuclear Aromatic Hydrocarbons (PAHs) (8070E)** – cost for water sample analysis for Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, and Naphthalene by EPA method 8070E.

6.1 **Total Lead (6010D or 6020B)** - cost for an unfiltered water sample analysis for lead by EPA method 6010D or 6020B.

7.1 **EDB (8011)** – cost for water sample analysis for 1,2 Dibromoethane, also referred to as Ethylene Dibromide (EDB) by EPA method 8011.

8.1 **EDB (8011 RUSH)** – cost for water sample analysis for 1,2 Dibromoethane, also referred to as Ethylene Dibromide (EDB) by EPA method 8011 within 24 hours of sample receipt by analytical laboratory.

9.1 **RCRA 8 Metals**- cost for water sample analysis for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver by EPA method 6010D or 6020B and 7470A for Mercury.

10.1 **TPH - Oil and Grease (9070)** – cost for water sample analysis for Total Petroleum Hydrocarbons, as oil and grease using EPA method 9070A.

11.1 **pH (Lab)** – cost for measurement of pH in a water sample at a laboratory.

12.1 **BOD** – cost for the analysis of Biological Oxygen Demand (BOD) in a water sample.

13.1 **Ethanol (8015)** – cost for water sample analysis for ethanol using EPA method 8015.

K. **Laboratory Analyses-Drinking Water (Water Supply Wells)**

14.1 **BTEXN, MTBE and 1,2, DCA (524.2)**- cost for water supply well sample analysis for BTEXN, Methyl tert-butyl Ether, and 1,2-Dichloroethane by EPA Method 542.2.

15.1 **8-Oxygenates (8260D)**– cost for water supply well sample analysis for the 8-Oxygenates by EPA method 8260D.

16.1 **EDB (504.1)** - cost for water supply well sample analysis for EDB by EPA method 504.1.

17.1 **RCRA 8 Metals**– cost for a water supply well sample analysis for the RCRA 8 metals by USEPA method 200.8.

K. Laboratory Analyses-Soil

18.1 **BTEXN (8260D)** – cost for a soil sample analysis for BTEXN by EPA method 8260D.

19.1 **PAHs (8270E)** – cost for a soil sample analysis for PAHs by EPA method 8270E.

20.1 **RCRA 8 Metals** - cost for a soil sample analysis for Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium and Silver by EPA method 6010D or 6020B and 7471B for Mercury.

21.1 **TPH-DRO (3550C/8015C)** – cost for a soil sample analysis for TPH-DRO by EPA method 3550C/8015C.

22.1 **TPH-GRO (5035B/8015C)** – cost for a soil sample analysis for TPH-GRO by EPA method 5035B /8015C.

23.1 **Grain Size/Hydrometer** – cost for Grain Size/Hydrometer analysis of soil sample to determine the sand, silt, and clay fractions at 0.074 mm (#200 screens) and at 0.004 mm.

24.1 **Total Organic Carbon**– cost for a soil sample analysis for total organic carbon by EPA method 9060A.

K. Laboratory Analysis - Air

25.1 **BTEXN (TO-15)** – cost for an air or soil gas sample for BTEXN by EPA method TO-15, including the provision of all equipment required for collection.

K. **Hydrocarbon Fuel Identification** - includes all personnel, equipment, and material costs associated with hydrocarbon fuel identification to identify the type of product or mixture of products and determine relative age of product or mixture of products using a scientifically accepted procedure for hydrocarbon fuel identification (e.g., GC/FID, GC/ECD, GC/MS, PIANO, etc.). This may require the laboratory to perform a series of analyses to make an informed and justifiable determination including, but not necessarily limited to, lead analysis as a means of age-dating a petroleum release.

The rate includes sample containers, shipping containers, labels, and documentation as required by the shipping company, the International Air Transportation Association (IATA), and any federal, state, or local regulations. Mobilization may not be added to this component.

27. **C3-C44 Whole Oil (ASTM D3328)** - Cost for analysis of whole product sample for gasoline Paraffins, Isoparaffins, Aromatics, Naphthalenes, Olefins (PIANO), alkanes and isoalkanes using ASTM method D3328.
 28. **Fuel Oxygenates (1624 Mod)** - Cost for the analysis of oxygenates in a whole product sample using a modified EPA 1624 method.
 29. **ALKYL Leads, EDB MMT (8080)** - Cost for analysis of lead compounds in a whole product sample, plus EDB and Methylcyclopentadienyl Manganese Tricarbonyl (MMT) using the modified EPA 8080 EPA method.
 30. **C8-C40 Full Scan (ASTM 5739)** - Cost for the analysis of a whole product, water, or soil sample for Alkanes, Isoalkanes, cycloalkane, aromatics, bicyclane, sterane, terpane, biomarkers using ASTM method 5739.
 31. **Simulated Distillation (ASTM 2887)** - Cost to conduct a simulated distillation analysis of a whole product sample using method ASTM 2887.
 32. **Parent & Alk. PAH Com. (8270 SIM)** - Cost for analysis of whole product, water or soil for the analyses of 53 parent and alkylated 2-5 ring PAHs.
 33. **C3-C10 PIANO (8260 Mod)** - Cost for PIANO analysis of a water or soil sample, alkanes and isoalkanes using a modified EPA 8260 method.
 34. **C10+ Alkane Fingerprint (ASTM 3328)** - Cost for C10+ alkane analysis of a soil, water, or whole product sample using methods ASTM 3328.
 35. **Expert Data Interpretation & Report** - Cost per expert analysis and report by qualified personnel. Guidance to identify unknown hydrocarbon contaminants, as well as any other characteristics (e.g. age, weathering, or type). Sources for comparison and justification for conclusions must be provided with the interpretation report. Credentials of the reviewer must also be provided upon request.
- L. **AQUIFER CHARACTERIZATION**- includes all personnel, equipment, and material costs associated with completion of a pumping test or slug test, record and report all data, reduce the data, and summarize it on DHEC's pumping test or slug test report forms. One personnel mobilization may be added to this component when not combined with other components.

- 1.1 **Pumping Test**-cost per hour. Generation of more than 5,000 gallons of waste water during a pumping test will require a general discharge permit from the Bureau of Water.
 - 2.1 **Slug Test**-cost per test. If water recharge is anticipated to be faster than manual methods allow, then DHEC requires the use of a pressure transducer.
 - 3.1 **Fractured Rock**-cost per test. The rate will include all costs associated with equipment to isolate each zone, instruments to record the data, data collection, data analysis, reporting, oversight of field tests and data analysis and other costs associated with determining groundwater velocity in each of these zones.
- M.1 **FREE PRODUCT RECOVERY RATE TEST** - includes all personnel, equipment, and material costs associated with performance of a free product recovery, bail down, or bail out test, calculate the free product recharge rate and true thickness, summarize the data in a tabular format, and discuss the results in a succinct narrative. One personnel mobilization may be added to this component when not combined with other components.
- O. **RISK EVALUATION**- Either a Tier 1 or a Tier 2 evaluation (not both, for the same report) may be requested.
- 1.1 **Tier 1 Risk Evaluation**- includes all personnel, equipment, and material costs associated with evaluation of the site data and potential receptors in order to determine the most appropriate action in accordance with the UST Quality Assurance Program Plan. Mobilization may not be added to this component.
 - 2.1 **Tier 2 Risk Evaluation**- includes all personnel, equipment, and material costs associated with evaluation of the site data and potential receptors in order to determine the most appropriate action for the site in accordance with the UST Quality Assurance Program Plan. Tier 2 evaluation includes all Tier 1 evaluation components. Mobilization may not be added to this component.
- P.1 **SUBSEQUENT SURVEY**- includes all personnel, equipment, and material costs associated with determining the location and elevation of screening points and permanent wells to be included in an existing comprehensive survey. A subsequent survey may be performed by a Professional Land Surveyor holding a current SC license, or a person trained and proficient in surveying procedures. One personnel mobilization may be added to this component, where appropriate. For every 15 wells, an additional subsequent survey may be allowed per mobilization.
- Q. **DISPOSAL**- includes all personnel, equipment, and material costs including containers associated with obtaining signatures on manifests, load, transport, treat and/or dispose of Investigation Derived Waste (wastewater, free product, soil or drilling fluids), including any sampling and analysis that may be required for characterization.

- 1.1 **Wastewater** – cost per gallon.
 - 2.1 **Free Product** – cost per gallon.
 - 3.1 **Soil Treatment/Disposal** – cost per ton.
 - 4.1 **Drilling Fluids** – cost per gallon.
- R. **MISCELLANEOUS** - includes all personnel, equipment and material costs not included in any of the defined components, which may be needed on a site-specific basis. Actual expenditures documented by vendor receipts or employee rate without fringe benefits must be submitted with the invoice (e.g., laboratory invoice for special analytical method, installation of water line, etc.). Any and all costs for the environmental contractor or any subcontractor must be pre-approved. Components will receive no markup or handling fee other than component S. If a professional or technician will oversee a component and is not associated with the firm or company conducting the component, a separate personnel mobilization for the professional or technician may be allowed.
- S. **REPORT PREPARATION/PROJECT COORDINATION** - includes all personnel, equipment, and material cost to complete a report documenting the data, results, and conclusions of all components completed during that phase of work. All personnel oversight and miscellaneous costs associated with procuring subcontractors, coordination of the project to include disposal of generated waste and off-site access, verification of work, quality assurance, communication with any parties, including sending a copy of the report to the responsible party, invoicing, and coordination with DHEC are also included. The Contractor must provide the UST Project Manager with a Project Status Report on a weekly basis via e-mail or notify the UST Project Manager via email 4 days prior to initiation of any site rehabilitation activities. If there are any changes or conflicts with the date(s) of site activities, the UST Project Manager must be contacted within 24 hours of those changes. The sum of all components may be multiplied by this percentage and then added to the total for a Tier II Assessment Report, Monitoring Report, or Well Abandonment Report. Any report that interprets the geology or groundwater flow must be signed and sealed by a professional geologist or engineer licensed to practice in South Carolina. All reports must be submitted by a DHEC certified site rehabilitation contractor. All wells, temporary and permanent, must have a geologist log and a DHEC Form 1903 (well record) signed by the well driller licensed in South Carolina. Mobilization may not be added to this component. If the UST owner or operator and the site rehabilitation contractor have a familial or financial relationship, this component shall not be allowed.
- T. **TIER I ASSESSMENT**- includes all personnel, equipment, and material cost to complete a Tier I Assessment.

1.1 **Southeast Region includes the following counties** - Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Marion, and Williamsburg.

2.1 **All other counties**

U. **INITIAL GROUNDWATER ASSESSMENT (IGWA)** - includes all personnel, equipment, and material cost to complete an IGWA.

1.1 **Southeast Region includes the following counties** - Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, Marion, and Williamsburg.

2.1 **All other counties**

V. **ACTIVE CORRECTIVE ACTION** - includes all personnel, equipment, and material cost to complete corrective action in accordance with site-specific contract or bid specifications.

W. 1.1-4. **AGGRESSIVE FLUID VAPOR RECOVERY (AFVR)** - includes all personnel, equipment, and material costs to conduct one AFVR event with a duration of 8, 24, 48 or 96 hours. The event includes the collection of all mechanical, operational, and site-specific data required by the QAPP, analysis of that data and, preparation and submittal of a report documenting the results of that event with all supporting documentation. AFVR Site Reconnaissance (W.14) and AFVR mobilization/demobilization (W.17) will be added to this component, as appropriate. A separate mobilization shall not be allowed for support vehicles except as defined in (W.17) below. A single per-gallon rate may be charged for transport and disposal of effluent.

5-8. **Off-Gas Treatment** - (per-event rate) applies if off-gas treatment is required because total volatile air emission concentrations would pose a risk to human health during the AFVR event. The off-gas treatment must have a minimum 80% reduction rate per required interval measurement.

9-12. **Off-Gas Treatment w/Chlorinated Compounds** - (per-event rate) applies if off-gas treatment is required because total volatile air emission concentrations would pose a risk to human health during the AFVR event and pre-existing laboratory analysis shows that the groundwater also contains chlorinated solvents at low levels defined as concentrations that do not exceed 500 times the respective chemical's MCL. Off-gas treatment must achieve an 80 percent reduction in volatile emissions over the entire AFVR event.

13.1 **AFVR Effluent Disposal w/Chlorinated Compounds** - includes all personnel, equipment, and material costs (including containers) associated with obtaining

manifest signatures, loading, transport, and treatment/disposal of effluent generated by the AFVR event where laboratory analysis shows that the wastewater also contains chlorinated solvents at low levels defined as concentrations that do not exceed 500 times the respective chemical's MCL. Effluent disposal shall not interfere with the continuity of the AFVR event.

14.1 AFVR Site Reconnaissance - includes all personnel travel time, lodging, meals, per diem, equipment, and material costs associated with a visit to the site where the AFVR event is to be conducted. Objectives of the site visit are to verify the location of the facility, locate, gauge, and identify monitoring/recovery wells targeted for AFVR, identify any challenges that may influence if and how the event is to be conducted, communicate with tank owner/property owner(s), and to verify the presence of measurable (0.01') free-phase product (FPP) in the target well(s). Results of the site visit shall be provided to the DHEC UST Management Division Project Manager via e-mail. The results should include gauging data for the AFVR target well(s), a proposed starting date for the AFVR event, and any pertinent site information. The UST Project Manager will decide if the AFVR event should proceed and will notify the contractor of the decision. AFVR events shall not be performed on target wells that have no measurable (0.01') FPP unless directed otherwise by DHEC. If DHEC determines that the AFVR event is no longer necessary, the contractor will submit an invoice for site reconnaissance only.

15. Additional Hook-Ups - include concurrent well connections utilized for extraction in excess of three for each AFVR event.

16.1 AFVR Effluent Disposal - includes all personnel, equipment, and material costs (including containers) associated with obtaining manifest signatures, loading, transport, and treatment/disposal of effluent generated by the AFVR event. Effluent disposal shall not interfere with the continuity of the AFVR event.

17.1 AFVR Mobilization/Demobilization - includes all personnel, equipment, mileage, and material costs to transport the AFVR unit, support vehicles, materials, and personnel to and from the site to include all lodging, meals, and other per diem costs. One mobilization/ demobilization is allowed per AFVR event. An additional mobilization may be approved if the quantity of effluent generated during the event is documented to exceed a quantity of 2500 gallons for an 8-hour event, 5000 gallons for a 24-hour event, 10,000 gallons for a 48-hour event, and 20,000 gallons for a 96-hour event. If the rate of recovery indicates the pre-approved quantity will be exceeded, the contractor must notify DHEC immediately. DHEC will then make a determination as to whether the AFVR event should be continued or terminated. The additional mobilization will be approved only for an AFVR event where the quantity of effluent exceeds the approved amount and DHEC has determined that the event be continued.

PASSIVE FREE PRODUCT RECOVERY (Absorbents and Skimmers)

- W. 18. **Mobilization for absorbents/skimbers** - this line item includes all travel, personnel time, lodging, meals, per diem, and mileage costs to mobilize to and from a single site for all activities associated with absorbents and/or skimmers. All waste must be transported in accordance with all applicable state and federal regulations. One mobilization will be allowed based on one or any combination of the following criteria:
- One mobilization will be allowed to deploy absorbent(s) and/or skimmer(s); or
 - One mobilization will be allowed to remove/replace absorbents, empty skimmers, and transport used absorbents or product from skimmers to permitted disposal facilities. (Repeat as necessary), or
 - One mobilization will be allowed to remove all absorbents and/or skimmers from the site and transport all absorbents and product from skimmers to permitted disposal facilities.
19. **Well Sock 2" ID well** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment or replacement of the specified absorbent.
20. **Well Sock 4" ID well** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment or replacement of the specified absorbent.
21. **Pad** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment or replacement of the specified absorbent. Minimum size of pad must be 15" x 18".
22. **3" diameter X 10' length boom** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment or replacement of the specified absorbent.
23. **5" diameter X 10' length boom** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment or replacement of the specified absorbent.
24. **New FPP recovery skimmer (2" wells)** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment of a new passive FPP skimmer unit.
25. **New FPP recovery skimmer (4" wells)** - includes all personnel and material costs (including stakes, rope, etc.) associated with the deployment of a new passive FPP skimmer unit.
26. **Refurbished FPP recovery skimmer (2" or 4" wells)** - includes all personnel and

material costs (including stakes, rope, etc.) associated with the deployment of a refurbished passive FPP skimmer unit.

27. **Disposal of absorbents (cost per pound)** - includes all personnel, equipment, and material costs including containers associated with obtaining signatures on manifests, load, transport, and dispose of used petroleum absorbents, including any sampling and analysis that may be required for characterization.

28. **Disposal of product from skimmers (cost per gallon)** - includes all personnel, equipment, and material costs including containers associated with obtaining signatures on manifests, load, transport and dispose of Free Phase Product recovered from skimmer units, including any sampling and analysis that may be required for characterization.

X. **GRANULAR ACTIVATED CARBON (GAC) FILTER SYSTEM INSTALLATION AND SERVICE**

-includes all personnel, equipment, and material costs associated with the installation of a GAC filter system. All plumbing work must be performed by a professional plumber certified in the State of South Carolina. The GAC system must filter volatile organic compounds (to include benzene, ethylbenzene, xylenes, methyl tert-butyl ether, etc.), polynuclear aromatic hydrocarbons and dissolved metals. The unit must have a minimum carbon capacity of two cubic feet or 50 pounds. New units must have a minimum five-year warranty on the control head and a lifetime warranty on the tank. The unit must have an automatic volume counter to keep account of water usage or a counter must be installed in conjunction with the unit. The unit must have a 48-hour capacitor that will reset the equipment for backwashing purposes in the event of electrical failure. The equipment specifications must be validated by the Water Quality Association. The contractor will provide a six-month warranty on all pipe, fittings, etc. used in the installation of all systems. The system will be installed inside the existing well house (space permitting) or inside a locked housing. Duplicates of all keys to locks must be provided to the owner of the well and to DHEC. The contractor will install faucets on the inlet and outlet lines of the system to allow for sampling. The faucets must be located inside the locked housing of the system. The installation will include up to ten (10) feet of pipe (Sch. 40 PVC) and all necessary materials and fittings.

1.1 **New GAC system installation** - includes all personnel, equipment, material costs, and electrical hookups needed for the installation, repair, or maintenance of all major brands of GAC filter systems. Mobilization may be added to this component, where appropriate.

2.1 **Refurbished GAC system installation** - includes all personnel, equipment, material costs, and electrical hookups needed for the installation, repair, or maintenance of refurbished GAC filter system provided by the UST Management Division. Mobilization may be added to this component, where appropriate.

- 3.1 **Filter removal/replacement** - includes all personnel, equipment, and material costs to remove and replace carbon/gravel filter in operating systems. Cost includes proper disposal of removed materials. Mobilization may be added to this component, where appropriate.
- 4.1 **GAC system removal, cleaning, and refurbishment** - includes all personnel, equipment, and material costs to remove, clean, refurbish, and deliver GAC system to a storage location (to be determined by DHEC at the time of removal). Mobilization may be added to this component, where appropriate
- 5.1 **GAC system housing** - includes all personnel, equipment, and material costs to outfit the GAC system housing. Housing must be lockable (cost to include lock if needed), vented, insulated to prevent freezing, and of sufficient size to allow access to service the GAC unit. Multiple locks will be keyed alike. Installation will include providing a supply of electrical power for the system.
- 6.1 **In-line particulate filter** - includes all personnel, equipment, and material costs to install an in-line particulate filter to remove suspended solids from water prior to entering the system, if needed.
- 7.1 **Additional piping with fittings** - includes all personnel, equipment, and material costs to install additional piping (Sch. 40 PVC) and fittings in excess of the allotted amount necessary to complete installation.
- Y. **WELL REPAIR** -includes all personnel, equipment, and material costs associated with the repair of monitoring wells that have been damaged since installation. The contractor will repair damaged or missing items to previously installed monitoring wells as previously approved by the UST Management Division. This activity will include replacement of a cracked or broken well pad, replacement of the well vault, replacement of a missing well tag, replacement of the well cover, bolts, well caps, and locks. A description of all repairs will be included in the report. If the professional that will oversee the repair work is not associated with the repair firm or company or is associated with the repair firm or company but mobilizes from a different town, a personnel mobilization may be allowed in addition to the well repair cost.
- 1.1 **Additional Copies of Reports**- includes mailing cost and paper copies of the report being sent to adjacent property owners and site property owners if they differ from the responsible party. To document the additional copies that were sent to property owners, their name and address can be courtesy copied on the cover page of the report or cover sheets addressed to the property owners can be included in Appendix J of the report. This cost does not include providing copies of the report to DHEC or the tank owner/operator, nor does it include providing electronic copies via email or other electronic data transfer.
- 2.1 **Repair 2x2 monitoring well pad**- cost to repair standard 2-foot x 2-foot concrete

well pad, on a per well basis.

3.1 **Repair 4X4 monitoring well pad**– cost to repair large 4-foot by 4-foot concrete well pad, on a per well basis.

4.1 **Replace well vault**– cost to reinstall the entirety of metal well vault, including the replacement of the concrete well pad, on a per well basis.

5.1 **Replace well cover bolts** – cost to replace missing well vault cover bolts.

6.1 **Replace locking well cap & lock**– cost to replace locking well cap on well casing.

7.1 **Replace/repair stick-up**– cost to repair or replace a damaged stick up well casing that is not installed inside a well vault, on a per well basis.

8.1 **Convert flush-mount to stick-up**– cost to convert a flush mounted well installed in a well vault to a stick-up well on a per well basis, on a per well basis.

9.1 **Convert stick-up to flush mount** - cost to convert a stick up well to a flush mounted well in well vault with a concrete well pad, on a per well basis

10.1 **Replace missing/illegible well ID plate**– cost to replace a metal well ID plate, on a per well basis.

11.1 **Down-hole Camera** – use of a video camera inserted down the well casing/borehole to visually record conditions, on a per foot basis.

Z. HIGH RESOLUTION SITE CHARACTERIZATION (HRSC)

NOTE: Proposal of these methods in an SSWP must include a written justification from the contractor. This justification should address the technical necessity for use of the technology, including how the use of HRSC furthers site rehabilitation for the particular release; how the use of HRSC technologies will improve upon the site conceptual model and increase the cost effectiveness of future site rehabilitation activities; the potential need for corrective action based upon the risk posed by the release; and the ability to successfully deploy HRSC given the geologic conditions present at the site.

1. **HRSC Screening Equipment Mobilization**: The HRSC screening equipment mobilization includes all costs to transport HRSC equipment, mileage, materials, and personnel to and from the site, and including all hotel, motel, meals, and other per diem costs. One unit cost will be allowed for HRSC screening equipment mobilization at each site. Additional HRSC screening equipment mobilizations cannot be billed for support trucks. If extenuating circumstances result in the need for an additional mobilization (e.g., property access issues), DHEC will require written justification from the registered professional supervising the assessment prior to issuing financial approval. Costs associated with additional

HRSC screening equipment mobilizations due to ineffective HRSC field screening methods that fail to define the plume as directed or requested by the DHEC project manager, will not be reimbursed.

2. **HRSC Drilling Category 1:** The per foot screening rate shall include all personnel costs, equipment and materials associated with the advancement of temporary borings/wells, in accordance with the SC Well Standards and Regulations (R.61-71), with the use of HRSC screening tools utilized to delineate LNAPL (e.g., LIF, OIP, etc.) that require no laboratory analytical devices (e.g., MIP, etc.) concurrently with the drilling, cost of determining the depth to water, any pre-drilling if necessary, and abandonment of the field screening points under the direct supervision of a South Carolina Licensed Well Driller. If the registered professional supervising the screening has combined tooling, methods, or technologies (e.g. LIF with PT) available then a single cost per foot will be charged regardless of the number of method(s) or technologies employed, and if multiple technologies can be used (e.g. LIF with combined tooling, etc.), then they must be used and only a single cost per foot will be allowed. Should the contractor not use multiple technologies, when it is possible to do so, or drills multiple borings when the data could have been collected with a single boring, then only a single cost per foot will be allowed. The selected technology must be identified in the ACQAP. No separate cost for abandonment will be allowed. If pre-drilling is performed, only the single cost per foot of the advancement of the HRSC temporary borings/wells for which the pre-drilling was done will be allowed, and no additional, separate, or extra cost for pre-drilling will be allowed.
3. **HRSC Drilling Category 2:** The per foot screening rate shall include all personnel costs, equipment and materials associated with the advancement of temporary borings/wells, in accordance with the SC Well Standards and Regulations (R.61-71), with the use of HRSC screening tools utilized to delineate dissolved constituents that require the use of laboratory analytical devices concurrently with the drilling (e.g. MIP, etc.), cost of determining the depth to water, any pre-drilling if necessary, and abandonment of the field screening points under the direct supervision of a South Carolina Licensed Well Driller. If the registered professional supervising the screening has combined tooling, methods, or technologies (e.g. MIP with PT) available then a single cost per foot will be charged regardless of the number of method(s) or technologies employed, and if multiple technologies can be used (e.g. MIP with combined tooling, etc.), then they must be used and only a single cost per foot will be allowed. Should the contractor not use multiple technologies, when it is possible to do so, or drills multiple borings when the data could have been collected with a single boring, then only a single cost per foot will be allowed. The selected technology must be identified in the ACQAP. No separate cost for abandonment will be allowed. If pre-drilling is performed, only the single cost per foot of the advancement of the HRSC temporary borings/wells for which the pre-drilling was done will be allowed, and no additional, separate, or extra cost for pre-drilling will be allowed.

4. **HRSC Drilling Category 3:** The per foot screening rate shall include all personnel costs, equipment and materials associated with the advancement of temporary borings/wells, in accordance with the SC Well Standards and Regulations (R.61-71), solely with the use of HRSC screening tools utilized separately from Cat 1 or Cat 2 where data is requested but combined tools are unable to be used in that location (e.g. PT without MIP), cost of determining the depth to water, any pre-drilling if necessary, and abandonment of the field screening points under the direct supervision of a South Carolina Licensed Well Driller. The selected technology must be identified in the ACQAP. No separate cost for abandonment will be allowed. If pre-drilling is performed, only the single cost per foot of the advancement of the HRSC temporary borings/wells for which the pre-drilling was done will be allowed, and no additional, separate, or extra cost for pre-drilling will be allowed.

5. **HRSC 3D Model:** At the request of the DHEC project manager, a 3D model will be included with the final report for that individual site. All costs associated with the preparation of the 3D model are included in the 3D Model rate. The 3D modeling rate will include cost of personnel and technology to submit a report that will include high resolution GIS imagery and traditional base map features (e.g., CAD drawings, mxd and sxd files, topographic maps, or aerial photographs), that can be combined to represent the ground surface in three-dimensions with the photographs or maps precisely placed on the topographic surface relative to an absolute elevation for each boring. High-resolution direct sensing data (e.g. LIF, MIP, EC, etc.) must be used to enhance the accuracy and usefulness of the model. The 3D models will incorporate lithologic information from boring logs in the form of 3D cross-sections as well as results from the HRSC data analyses. The synthesis of this information into an interactive database visualization tool must allow the distribution of contaminants to be clearly shown within the hydrogeologic framework and can be used to demonstrate how the contamination interacts within the subsurface.

LIST OF ACRONYMS

ACQAP- Annual Contractor Quality Assurance Program Plan
AFVR - Aggressive Fluid and Vapor Recovery
ASTM - American Society for Testing and Materials
BTEXN - Benzene, Toluene, Ethylbenzene, Xylenes and Naphthalene
BOD- Biological Oxygen Demand
CoC- Chemical of Concern
DHEC - Department of Health and Environmental Control
DIPE - Di-Isopropyl Ether
DRO - Diesel Range Organics
EDB - Ethylene Dibromide or 1,2 Dibromoethane
EtBE - Ethyl tert-Butyl Ether
EPA - Environmental Protection Agency
FPP - Free Phase Product
GAC - Granular Activated Carbon
GPR - Ground Penetrating Radar
GRO - Gasoline Range Organics
HRSC - High Resolution Site Characterization
IATA - International Air Transportation Association
IDW - Investigation Derived Water
IGWA- Initial Groundwater Assessment
LNAPL - Light Non-Aqueous Phase Liquid
MCL - Maximum Contaminant Levels
mm- millimeter
MMT - Methylcyclopentadienyl Manganese Tricarbonyl
MTBE - Methyl tert-butyl Ether
PAH - Polynuclear Aromatic Hydrocarbons
PIANO - Paraffins Isoparaffins Aromatics Naphthalenes Olefins
PVC - Polyvinyl Chloride
QA/QC - Quality Assurance / Quality Control
QAPP- Quality Assurance Program Plan
RCRA - Resource Conservation and Recovery Act
SC- South Carolina
SCDHEC- South Carolina Department of Health and Environmental Control
SSWP - Site Specific Work Plan
SUPERB - State Underground Petroleum Environmental Response Bank
TAA - Tert-Amyl Alcohol
TBA - Tert-Butyl Alcohol
TBF - Tert-Butyl Formate
TPH- Total Petroleum Hydrocarbons
UST - Underground Storage Tank