

## SCS ENGINEERS

October 5, 2018  
File No. 25216050.00

Mr. John Hnat  
Wisconsin Department of Natural Resources  
2300 N Dr. Martin Luther King Jr Dr.  
Milwaukee, WI 53212

Subject:       PECFA Change Order Request  
                  Former Mobil Station 05-H4A  
                  PECFA #53222-1435-22A  
                  BRRTS #03-41-095653

Dear Mr. Hnat:

We have reviewed your August 14, 2018, letter response to the September 2016 Revised Remedial Action Options Plan and Remedial Design Report and are providing this Petroleum Environmental Cleanup Fund Award (PECFA) budget for additional work required with your letter. This change order request provides a scope and estimated PECFA costs for the following work:

- Preparing change order request (this letter)
- Pressure field extension testing to evaluate effectiveness of existing vapor mitigation systems
- Sub-slab sampling to evaluate current sub-slab vapor concentrations
- Indoor air and outdoor background air sampling to evaluate current indoor air quality
- Construction and operation of a soil vapor extraction (SVE) system
- Post-SVE groundwater monitoring

### CHANGE ORDER REQUEST (VARIANCE)

Costs for preparation of this change order request are requested as a variance to the Usual and Customary Cost Schedule (UCCS) as it has taken additional effort beyond what is typically required for a UCCS change order item, and much of the costs are based on variances to the UCCS.

### PRESSURE FIELD EXTENSION TESTING (VARIANCE)

SCS Engineers (SCS) will perform the following work to evaluate the effectiveness of both the perimeter drain tile venting system (DTVS) and the interior sub-slab depressurization mitigation system (SSDMS) at Grace to include:



- Review the available systems construction documentation
- Communicate with and arrange access for the testing with Grace
- Inspect the DTVS, SSDMS, and the two basement sumps
- Test to make sure the two basement sumps are properly sealed
- Install up to 16 vacuum observation points. The points will be installed in 2-inch-diameter holes drilled through the basement floor. A stainless steel Vapor Pin™ will be sealed inside each hole, flush with the floor, and capped with a stainless steel cap.
- Measure sub-slab vacuum distribution at vacuum observation points under the following scenarios:
  - DTVS and SSDMS on
  - DTVS and SSDMS off
  - DTVS on with SSDMS off
  - SSDMS on with DTVS off

### SUB-SLAB SAMPLING (VARIANCE)

With approval from Grace, SCS will shut down both the DTVS and the SSDMS for approximately 1 week. After approximately 1 week with the systems off, SCS will conduct sub-slab sampling at the 6 of the 16 vacuum observation points noted above. The samples will be collected consistent with Wisconsin Department of Natural Resources (WDNR's) January 2018 RR-800 vapor intrusion guidance document and analyzed for benzene, ethylbenzene, methyl tert-butyl ether (MTBE), toluene, trimethylbenzenes, xylenes, and naphthalene via laboratory method TO-15.

### INDOOR AIR SAMPLING (VARIANCE)

SCS will collect three ambient air samples at Grace during the above-noted sub-slab sampling. The samples will be collected consistent with RR-800 guidance from the ground floor, basement, and outdoor (background) air. The samples will be analyzed for benzene, ethylbenzene, MTBE, toluene, trimethylbenzenes, xylenes, and naphthalene via laboratory method TO-15.

The vapor mitigation systems will be turned back on following the indoor air sampling.

## SVE SYSTEM CONSTRUCTION, OPERATION, MONITORING, AND MAINTENANCE (UCCS AND VARIANCE)

A SVE system will be installed in an area of residual soil and groundwater contamination on the PSK property located north of the underground storage tanks (USTs) and beneath the sidewalk north of the car wash building in the utility corridor. The SVE system will serve to remove contaminant mass in the unsaturated zone in these areas, to increase the attenuation capacity of the soil, and potentially decrease the leaching of contaminants from soil to groundwater. The system will be operated for 6 months following startup.

### SVE System Construction

Monitoring well MW-21 will be modified to serve as a joint soil vapor extraction well (MW21/SVE-2) and a groundwater monitoring well. Well MW-21 is located north of the car wash building in the sidewalk along Sarasota Place. MW-21 has a 2-inch-diameter PVC casing and well screen that extends from 5 feet below ground surface (bgs) to 15 feet bgs. The existing sidewalk will be removed around the well, and soil excavated to expose the 2-inch PVC casing. A 2-inch PVC tee fitting will be installed on the casing at a depth of 3 feet bgs. A 2-inch PVC horizontal pipe will be installed to the tee fitting and run to the foundation of the car wash building, where a 2-inch PVC 90 degree elbow will be added, and the piping run vertically along the outside of the building to the roof. Piping will run aboveground along the wall of the car wash building to a small enclosure located near the northwest corner of the car wash building. An explosion-proof electric blower will be installed to remove soil vapors from the subsurface around MW-21/SVE-2.

At the monitoring well, a 2-inch PVC vertical pipe will be added to the top of the tee fitting. An expandable well plug will be used to seal the well. The well cover and the concrete sidewalk will be restored. This modification will allow MW-21/SVE-2 to continue to be used for groundwater sampling, as needed. A drawing showing the modification to MW-21 is included on Figure 5 of the Remedial Action Options Plan and Remedial Design Report.

Proposed soil vapor extraction well SVE-1 will be located in the northwest corner of the site in an area of residual impacts. SVE-1 will be installed using conventional drilling equipment and will extend to a depth of 15 feet bgs. The well will be made of 3-inch-diameter PVC and will have a 10-foot well screen. The well will be finished with a flush-mount well cover and a PVC tee fitting. PVC piping will be installed underground from the tee fittings at SVE-1 to a small enclosure located near the northwest corner of the car wash building. The SVE piping will run horizontally to an enclosure, and an SVE blower for each SVE well located within a single enclosure located in the landscaped area near the northeast corner of the car wash building.

Samples will be collected from the soil vapor extraction system exhaust to determine if an air permit is necessary for operation of the system. Sample results will be submitted to the WDNR and, as appropriate, an air permit application will be prepared.

Soil generated from installation of the soil vapor extraction system will be handled in accordance with the Material Management Plan included in Appendix C of the Remedial Action Options Plan and Remedial Design Report.

### SVE System Operation, Monitoring, and Maintenance

The soil vapor extraction system at wells MW-21/SVE-2 and SVE-1 will have separate blowers. Samples from the exhaust of the blowers will be obtained for analysis for volatile organic compounds (VOCs). Sampling will be consistent with the WDNR *Guidance for Design, Installation, and Operation of Soil Venting Systems* (WDNR PUB-RR-185) dated June 2002. System exhaust sampling and negative pressure measurements will be performed daily for the first 3 days of operation, weekly for the next 3 weeks, then monthly. Samples will be obtained using a sampling pump and carbon tubes. Samples will be analyzed for VOCs. The flow rate of the system will also be measured at the same frequency. To assess sub-surface vacuum distribution, vacuum measurements will be made at existing vapor probes (VP-1 through VP-4) and monitoring wells MW-1, MW-2, MW-3, MW-7, MW-20, MW-21/SVE-2, and SVE-1, as appropriate for measuring the area of influence.

The WDNR Remediation Site Operation, Maintenance, Monitoring & Optimization Report (Form 4400-194) will be completed for the soil vapor extraction system at wells MW-21 and SVE-1 and submitted to the WDNR. The total mass of the gasoline range organics extracted from the SVE system will be calculated over time. When the rate of contaminant mass removal diminishes, or plateaus, the system will be considered for shut down, subject to WDNR approval.

### POST SVE GROUNDWATER MONITORING (UCCS)

SCS will perform two rounds of post-SVE groundwater monitoring for monitoring wells MW1, MW2, MW3, MW5, MW7, MW20, MW21, and the groundwater sump at PECFA UCCS rates. During each event, water levels will be measured at all site wells, and samples will be collected from the above-noted wells and sump. The samples will be analyzed for petroleum volatile organic compounds (PVOCs). Purge water from the sampling events will be properly disposed.

### REPORTING (UCCS)

A report summarizing the pressure field extension testing, sub-slab sampling, and indoor/outdoor air sampling will be submitted to the WDNR as an addendum (letter report addendum) to the Remedial Action Options Plan and Remedial Design Report. The report will include the following:

- Summary of methods and findings
- Recommendation for mitigation system modifications, if appropriate
- Map(s) showing sample locations
- Tabulated vacuum and analytical results

- Laboratory reports

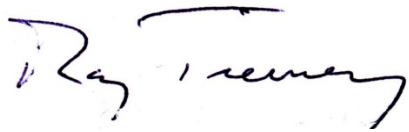
SCS will submit a separate budget request with design details for vapor mitigation system modifications, if appropriate. Post-SVE groundwater sampling results will be submitted under separate cover with findings from SVE operation.

## ESTIMATED PROJECT COSTS

We estimate a PECFA cost of \$69,512.29 per the attached UCCS. Additional details regarding costs requested as a Variance to the UCCS are provided in the attached SCS cost spreadsheet. The estimated PECFA-eligible project cost is \$17,378.07 or 25 percent of the above-noted PECFA cost, based on the WDNR's December 17, 2014 Cost Separation Methodology letter.

Please contact Ray Tierney at (608) 216-7332 if you have any questions concerning this budget request.

Sincerely,



Ray Tierney  
Vice President  
**SCS ENGINEERS**



Robert E. Langdon  
Senior Project Manager  
**SCS ENGINEERS**

REL/AJR/RT

cc: Lee Delcore, WDNR  
Thomas A. Cabush, Kasdorf, Lewis & Swietlik S.C.  
David G. Peterson, Reinhart Boerner Van Deuren s.c.  
Donald P. Gallo, Axley Brynerson, LLP  
Jagdisher Singh Kler, PSK Investments

Enclosures: UCCS Spreadsheet  
SCS Cost Estimate Spreadsheet for Variance Costs

# Usual and Customary Standardized Invoice #24 July 2018- December 2018



RR-100a

PECFA #: 53222-1435-22-A  
 BRRTS #: 03-41-095653  
 Site Name: Mobil Oil Gas Station 05-H4A  
 Site Address: 9922 W. Capitol Drive, Milwaukee

Vendor Name: SCS Engineers  
 Invoice #: Change Order  
 Invoice Date: \_\_\_\_\_  
 Check #: \_\_\_\_\_

U&C Total \$ 10,842.29  
 Variance to U&C Total \$ 58,670.00  
 Grand Total \$ 69,512.29

TASK	TASK DESCRIPTION	SERVICES	ACTIVITY CODE	ACTIVITY REFERENCE CODE DESCRIPTION	UNIT	MAX UNIT COST	UNITS	TOTAL MAX
1	GW Sampling		GS05	Sample Collection	Well	\$ 72.45	16	\$ 1,159.20
1	GW Sampling		GS25	Primary Mob/Demob	Site	\$ 628.11	2	\$ 1,256.22
2	O & M Reporting		OMR05	Semi-Annual GW Monitoring (Form 4400-194)	Report	\$ 823.73	2	\$ 1,647.46
4	Waste Disposal	Consultant	WD05	Consultant Coordination	Site	\$ 137.13	2	\$ 274.26
4	Waste Disposal	Commodity	WD10	GW Sample and/or Purge	Drum	\$ 42.11	4	\$ 168.44
4	Waste Disposal	Commodity	WD15	Drill Cuttings	Drum	\$ 108.15	2	\$ 216.30
4	Waste Disposal	Commodity	WD25	Primary Mob/Demob	Site	\$ 287.70	3	\$ 863.10
6	Letter Report/Addendum		LRA05	Letter Report/Addendum	Letter	\$ 1,039.29	1	\$ 1,039.29
13.a	Drilling In Unconsolidated Soils - With Soil Sampling	Consultant	DR10	26 - 50 ft bgs	Ft	\$ 5.67	15	\$ 85.05
13.e	Drilling In Unconsolidated Soils - Without Soil And/Or GW Sampling	Commodity	DR60	Drilling in Unconsolidated Soils	Ft	\$ 11.97	15	\$ 179.55
14	Monitoring Well Installation	Consultant	MWI05	0 - 25 ft bgs	Ft	\$ 3.89	15	\$ 58.35



# Usual and Customary Standardized Invoice #24

## July 2018- December 2018



RR-100A

**TOTAL LAB CHARGES \$ 2,068.28    TASK 33    40    \$ 2,068.28    TASK 24    0 \$ -**

MATRIX	REF CODE	REIMBURSABLE ANALYTE	UNITS	MAX COST	SAMPLES	TOTAL	MAX COST	SAMPLES	TOTAL
AIR	A4	VOC's	SAMPLE	\$ 71.93	22	\$ 1,582.46			
WATER	W2	PVOC	SAMPLE	\$ 26.99	18	\$ 485.82			
LNAPL	LFPS01	Interfacial tension III (water/air) [dyne/cm]	SAMPLE	\$ 561.33		\$ -			
<b>TASK 33 TOTAL</b>						<b>\$ 2,068.28</b>			



**Cost Estimate - SCS Engineers  
KJG/Grace Variance Costs  
SCS Project No. 25216050.00**

**SCS ENGINEERS**

Task Description	Project Director \$194	Project Manager \$153	Senior Project Professional \$122	Staff Professional \$108	Field Professional \$102	Designer/ CAD Tech \$82	Admin Asst \$70	Total Hours	Subtotal	Exp	Subs	Total	Task Total Rounded to \$10
<b>Task 1 – Change Order Request</b>													
Prepare change order	2	6		2			2	12	\$1,662			\$1,662	
								0	\$0			\$0	
<b>Subtotal</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>12</b>	<b>\$1,662</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,662</b>	<b>\$1,660</b>
<b>Task 2 – Pressure Field Extension Testing</b>													
Review files			4				1	5	\$558			\$558	
Coordinate with Grace	1	4						5	\$806			\$806	
Inspect DTVS, SSDS, and basement sumps		2			8			10	\$1,122			\$1,122	
Test sumps					1			1	\$102			\$102	
Install 16 sub-slab points		2			12		1	15	\$1,600			\$1,600	
Measure vacuum distribution under following scenarios								0	\$0			\$0	
DTVS and SSDMS on		0.5			6			6.5	\$689			\$689	
DTVS and SSDMS off		0.5			6			6.5	\$689			\$689	
DTVS on with SSDMS off		0.5			6			6.5	\$689			\$689	
SSDMS on with DTVS off		0.5			6			6.5	\$689			\$689	
SCS Expenses								0	\$0	\$1,710		\$1,710	
								0	\$0			\$0	
<b>Subtotal</b>	<b>1</b>	<b>10</b>	<b>4</b>	<b>0</b>	<b>45</b>	<b>0</b>	<b>2</b>	<b>62</b>	<b>\$6,942</b>	<b>\$1,710</b>	<b>\$0</b>	<b>\$8,652</b>	<b>\$8,650</b>
<b>Task 3 – Sub-Slab Sampling</b>													
Sample 6 sub-slab sample points		2	1		12		1	16	\$1,722			\$1,722	
SCS expenses								0	\$0	\$200		\$200	
Laboratory subcontractor								0	\$0		\$1,200	\$1,200	
								0	\$0			\$0	
<b>Subtotal</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>1</b>	<b>16</b>	<b>\$1,722</b>	<b>\$200</b>	<b>\$1,200</b>	<b>\$3,122</b>	<b>\$3,120</b>
<b>Task 4 – Indoor Air Sampling</b>													
Sample basement, first floor, and outdoor air (3 samples)		1			10		1	12	\$1,243			\$1,243	
SCS expenses								0	\$0	\$200		\$200	
Laboratory subcontractor								0	\$0		\$600	\$600	
								0	\$0			\$0	
<b>Subtotal</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>12</b>	<b>\$1,243</b>	<b>\$200</b>	<b>\$600</b>	<b>\$2,043</b>	<b>\$2,040</b>
<b>Task 5 – SVE System Construction and Operation (6 Months)</b>													
Design, Bidding, Contracting, and Project Management	4	4	16	8			4	36	\$4,484			\$4,484	
Permitting		1	6				2	9	\$1,025		\$1,200	\$2,225	
Construction oversight	1	1	2		30		1	35	\$3,721		\$1,001	\$4,722	
SVE Construction documentation report	2	4	16	3		8	4	37	\$4,212			\$4,212	
Collect exhaust samples (1 per day for 3 days)		1			18			19	\$1,989			\$1,989	
Collect exhaust samples (1 per week for 3 weeks)		1			18			19	\$1,989			\$1,989	
Collect exhaust samples (1 per month for 5 months)		2			30			32	\$3,366			\$3,366	
SCS expenses (piping, blowers, blower enclosures, misc expenses)								0	\$0	\$6,260		\$6,260	
Electrical contractor								0	\$0		\$500	\$500	
Excavation, underground piping, and pavement replacement contractor								0	\$0		\$12,000	\$12,000	
Soil Disposal Contractor (SVE trench spoils)								0	\$0		\$1,200	\$1,200	
Concrete disposal contractor								0	\$0		\$250	\$250	
								0	\$0			\$0	
<b>Subtotal</b>	<b>7</b>	<b>14</b>	<b>40</b>	<b>11</b>	<b>96</b>	<b>8</b>	<b>11</b>	<b>187</b>	<b>\$20,786</b>	<b>\$6,260</b>	<b>\$16,151</b>	<b>\$43,197</b>	<b>\$43,200</b>
<b>Total</b>	<b>10</b>	<b>33</b>	<b>45</b>	<b>13</b>	<b>163</b>	<b>8</b>	<b>17</b>	<b>289</b>	<b>\$32,355</b>	<b>\$8,370</b>	<b>\$17,951</b>	<b>\$58,676</b>	<b>\$58,680</b>

\$58,676      \$58,670



Task 2 - Pressure Field Extension Testing				
Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
<b>GROUNDWATER MONITORING</b>				
Bentonite, chipped		Bag	\$12.00	\$0.00
Brass well locks		Each	\$12.00	\$0.00
Dedicated bailers		Each	\$42.00	\$0.00
Disposable bailers		Each	\$15.00	\$0.00
Dissolved oxygen meter		Day	\$40.00	\$0.00
Dissolved oxygen test kit		Day	\$25.00	\$0.00
Dissolved oxygen tubes		Each	\$5.00	\$0.00
Field filtering apparatus		Day	\$22.00	\$0.00
Field filters		Each	\$16.00	\$0.00
Flush-mount well cover		Each	\$125.00	\$0.00
Ice		Bag	\$7.00	\$0.00
Oil/water interface probe		Day	\$70.00	\$0.00
Petroleum product interface probe		Day	\$70.00	\$0.00
pH, conductivity, temp, TDS meter		Day each	\$20.00	\$0.00
Pressure transducer and data logger		Day	\$125.00	\$0.00
Water level indicator		Day	\$30.00	\$0.00
Well caps		Each	\$18.25	\$0.00
YSI meter		Day	\$30.00	\$0.00
<b>PUMPS</b>				
2" gas engine pump		Day	\$45.00	\$0.00
Bladder pump controller		Day	\$50.00	\$0.00
Explosion proof pump		Day	\$100.00	\$0.00
Peristaltic pump		Day	\$30.00	\$0.00
Submersible pump		Day	\$100.00	\$0.00
Sump pump		Day	\$15.00	\$0.00
Well development pump		Day	\$30.00	\$0.00
<b>PPE &amp; AIR/GAS MONITORING</b>				
Air monitoring detector tubes		Each	\$15.00	\$0.00
Carbon monoxide meter		Day	\$20.00	\$0.00
Four gas meter		Day	\$65.00	\$0.00
Landfill gas meter		Day	\$100.00	\$0.00
Level D PPE	3	Day	\$5.00	\$15.00
Modified Level D PPE		Day	\$15.00	\$0.00
Personal air sampling pump		Day	\$30.00	\$0.00
Respirator cartridges		Pair	\$25.00	\$0.00
Tyvek suit		Each	\$20.00	\$0.00
<b>SOIL SAMPLING AND TESTING</b>				
Concrete air/slump		Each	\$30.00	\$0.00
Concrete core drill		Day	\$120.00	\$0.00
Concrete cylinder mold		Each	\$3.00	\$0.00
Photoionization detector (PID) rental	3	Day	\$75.00	\$225.00
Flameionization detector (FID) rental		Day	\$85.00	\$0.00
Hand auger kit		Day	\$30.00	\$0.00
Nuclear density gauge		Day	\$125.00	\$0.00
Sampling conduit	10'	section	\$4.00	\$0.00
Rotohammer	1	Day	\$25.00	\$25.00
Vapor pin	16	Each	\$60.00	\$960.00
Vapor sampling kit		Day	\$25.00	\$0.00
<b>SURVEYING</b>				
3/4-inch irons		Each	\$4.00	\$0.00
GPS unit/total station		Hour	\$20.00	\$0.00
GPS site mapping unit		Day	\$50.00	\$0.00
Level/laser level		Hour	\$5.00	\$0.00
Marking paint		Each	\$5.00	\$0.00
Survey chasers		Each	\$0.30	\$0.00
Survey hubs		Each	\$0.60	\$0.00
Survey lath		Each	\$0.75	\$0.00
<b>MISCELLANEOUS</b>				
55-gallon drums		Each	\$55.00	\$0.00
Air compressor		Day	\$40.00	\$0.00
Air sparge pilot test set-up		Day	\$250.00	\$0.00
Boat, 14-foot		Day	\$50.00	\$0.00
Boom trailer		Day	\$250.00	\$0.00
Concrete		Bag	\$10.00	\$0.00
Curlex blanket		Each	\$65.00	\$0.00
Curlex staples		Box	\$10.00	\$0.00
Cut-off saw		Day	\$50.00	\$0.00
Digital camera		Day	\$10.00	\$0.00
Dump trailer		Day	\$175.00	\$0.00
Hard boom (10')		Foot	\$1.80	\$0.00
HEPA vacuum		Day	\$40.00	\$0.00
Liquid ring pilot test set-up		Day	\$125.00	\$0.00
Metal detector		Day	\$35.00	\$0.00
Oil absorbent boom (6' x 10')		Each	\$70.00	\$0.00
Oil absorbent boom (8' x 10')		Each	\$90.00	\$0.00
Oil absorbent Pad		Each	\$0.75	\$0.00
Oil dry absorbent		Bag	\$8.00	\$0.00
Orange safety fence		Roll	\$40.00	\$0.00
Overpack drum		Each	\$180.00	\$0.00
Plastic sheeting		Roll	\$55.00	\$0.00
Portable generator		Day	\$45.00	\$0.00
Power auger setup		Day	\$75.00	\$0.00
Power tools, small		Day	\$20.00	\$0.00
Spill response trailer		Day	\$200.00	\$0.00
SVE pilot test setup		Day	\$250.00	\$0.00
T-Posts		Each	\$4.00	\$0.00
Utility trailer		Day	\$40.00	\$0.00
Water storage tank		Day	\$75.00	\$0.00
Water treatment		Gallons	\$0.20	\$0.00
Meals	8	Meal	\$10.00	\$80.00
Mileage	800	Miles	\$0.51	\$408.00
Motel		Day		\$0.00
<b>TOTAL FIELD EQUIPMENT AND EXPENSES (Rounded to Nearest \$10)</b>				<b>\$1,710.00</b>

Task 3 - Sub-Slab Sampling				
Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
<b>GROUNDWATER MONITORING</b>				
Bentonite, chipped		Bag	\$12.00	\$0.00
Brass well locks		Each	\$12.00	\$0.00
Dedicated bailers		Each	\$42.00	\$0.00
Disposable bailers		Each	\$15.00	\$0.00
Dissolved oxygen meter		Day	\$40.00	\$0.00
Dissolved oxygen test kit		Day	\$25.00	\$0.00
Dissolved oxygen tubes		Each	\$5.00	\$0.00
Field filtering apparatus		Day	\$22.00	\$0.00
Field filters		Each	\$16.00	\$0.00
Flush-mount well cover		Each	\$125.00	\$0.00
Ice		Bag	\$7.00	\$0.00
Oil/water interface probe		Day	\$70.00	\$0.00
Petroleum product interface probe		Day	\$70.00	\$0.00
pH, conductivity, temp, TDS meter		Day each	\$20.00	\$0.00
Pressure transducer and data logger		Day	\$125.00	\$0.00
Water level indicator		Day	\$30.00	\$0.00
Well caps		Each	\$18.25	\$0.00
YSI meter		Day	\$30.00	\$0.00
<b>PUMPS</b>				
2" gas engine pump		Day	\$45.00	\$0.00
Bladder pump controller		Day	\$50.00	\$0.00
Explosion proof pump		Day	\$100.00	\$0.00
Peristaltic pump		Day	\$30.00	\$0.00
Submersible pump		Day	\$100.00	\$0.00
Sump pump		Day	\$15.00	\$0.00
Well development pump		Day	\$30.00	\$0.00
<b>PPE &amp; AIR/GAS MONITORING</b>				
Air monitoring detector tubes		Each	\$15.00	\$0.00
Carbon monoxide meter		Day	\$20.00	\$0.00
Four gas meter		Day	\$65.00	\$0.00
Landfill gas meter		Day	\$100.00	\$0.00
Level D PPE	1	Day	\$5.00	\$5.00
Modified Level D PPE		Day	\$15.00	\$0.00
Personal air sampling pump		Day	\$30.00	\$0.00
Respirator cartridges		Pair	\$25.00	\$0.00
Tyvek suit		Each	\$20.00	\$0.00
<b>SOIL SAMPLING AND TESTING</b>				
Concrete air/slump		Each	\$30.00	\$0.00
Concrete core drill		Day	\$120.00	\$0.00
Concrete cylinder mold		Each	\$3.00	\$0.00
Photoionization detector (PID) rental	1	Day	\$75.00	\$75.00
Flameionization detector (FID) rental		Day	\$85.00	\$0.00
Hand auger kit		Day	\$30.00	\$0.00
Nuclear density gauge		Day	\$125.00	\$0.00
Sampling conduit	10'	section	\$4.00	\$0.00
Rotohammer		Day	\$25.00	\$0.00
Vapor pin		Each	\$60.00	\$0.00
Vapor sampling kit		Day	\$25.00	\$0.00
<b>SURVEYING</b>				
3/4-inch irons		Each	\$4.00	\$0.00
GPS unit/total station		Hour	\$20.00	\$0.00
GPS site mapping unit		Day	\$50.00	\$0.00
Level/laser level		Hour	\$5.00	\$0.00
Marking paint		Each	\$5.00	\$0.00
Survey chasers		Each	\$0.30	\$0.00
Survey hubs		Each	\$0.60	\$0.00
Survey lath		Each	\$0.75	\$0.00
<b>MISCELLANEOUS</b>				
55-gallon drums		Each	\$55.00	\$0.00
Air compressor		Day	\$40.00	\$0.00
Air sparge pilot test set-up		Day	\$250.00	\$0.00
Boat, 14-foot		Day	\$50.00	\$0.00
Boom trailer		Day	\$250.00	\$0.00
Concrete		Bag	\$10.00	\$0.00
Curlex blanket		Each	\$65.00	\$0.00
Curlex staples		Box	\$10.00	\$0.00
Cut-off saw		Day	\$50.00	\$0.00
Digital camera		Day	\$10.00	\$0.00
Dump trailer		Day	\$175.00	\$0.00
Hard boom (10')		Foot	\$1.80	\$0.00
HEPA vacuum		Day	\$40.00	\$0.00
Liquid ring pilot test set-up		Day	\$125.00	\$0.00
Metal detector		Day	\$35.00	\$0.00
Oil absorbent boom (6' x 10')		Each	\$70.00	\$0.00
Oil absorbent boom (8' x 10')		Each	\$90.00	\$0.00
Oil absorbent Pad		Each	\$0.75	\$0.00
Oil dry absorbent		Bag	\$8.00	\$0.00
Orange safety fence		Roll	\$40.00	\$0.00
Overpack drum		Each	\$180.00	\$0.00
Plastic sheeting		Roll	\$55.00	\$0.00
Portable generator		Day	\$45.00	\$0.00
Power auger setup		Day	\$75.00	\$0.00
Power tools, small		Day	\$20.00	\$0.00
Spill response trailer		Day	\$200.00	\$0.00
SVE pilot test setup		Day	\$250.00	\$0.00
T-Posts		Each	\$4.00	\$0.00
Utility trailer		Day	\$40.00	\$0.00
Water storage tank		Day	\$75.00	\$0.00
Water treatment		Gallons	\$0.20	\$0.00
Meals	2	Meal	\$10.00	\$20.00
Mileage	200	Miles	\$0.51	\$102.00
Motel		Day		\$0.00
<b>TOTAL FIELD EQUIPMENT AND EXPENSES (Rounded to Nearest \$10)</b>				<b>\$200.00</b>

Task 4 - Indoor Air Sampling				
Description	Estimated Quantity	Unit	Unit Cost	Estimated Cost
<b>GROUNDWATER MONITORING</b>				
Bentonite, chipped		Bag	\$12.00	\$0.00
Brass well locks		Each	\$12.00	\$0.00
Dedicated bailers		Each	\$42.00	\$0.00
Disposable bailers		Each	\$15.00	\$0.00
Dissolved oxygen meter		Day	\$40.00	\$0.00
Dissolved oxygen test kit		Day	\$25.00	\$0.00
Dissolved oxygen tubes		Each	\$5.00	\$0.00
Field filtering apparatus		Day	\$22.00	\$0.00
Field filters		Each	\$16.00	\$0.00
Flush-mount well cover		Each	\$125.00	\$0.00
Ice		Bag	\$7.00	\$0.00
Oil/water interface probe		Day	\$70.00	\$0.00
Petroleum product interface probe		Day	\$70.00	\$0.00
pH, conductivity, temp, TDS meter		Day each	\$20.00	\$0.00
Pressure transducer and data logger		Day	\$125.00	\$0.00
Water level indicator		Day	\$30.00	\$0.00
Well caps		Each	\$18.25	\$0.00
YSI meter		Day	\$30.00	\$0.00
<b>PUMPS</b>				
2" gas engine pump		Day	\$45.00	\$0.00
Bladder pump controller		Day	\$50.00	\$0.00
Explosion proof pump		Day	\$100.00	\$0.00
Peristaltic pump		Day	\$30.00	\$0.00
Submersible pump		Day	\$100.00	\$0.00
Sump pump		Day	\$15.00	\$0.00
Well development pump		Day	\$30.00	\$0.00
<b>PPE &amp; AIR/GAS MONITORING</b>				
Air monitoring detector tubes		Each	\$15.00	\$0.00
Carbon monoxide meter		Day	\$20.00	\$0.00
Four gas meter		Day	\$65.00	\$0.00
Landfill gas meter		Day	\$100.00	\$0.00
Level D PPE	1	Day	\$5.00	\$5.00
Modified Level D PPE		Day	\$15.00	\$0.00
Personal air sampling pump		Day	\$30.00	\$0.00
Respirator cartridges		Pair	\$25.00	\$0.00
Tyvek suit		Each	\$20.00	\$0.00
<b>SOIL SAMPLING AND TESTING</b>				
Concrete air/slump		Each	\$30.00	\$0.00
Concrete core drill		Day	\$120.00	\$0.00
Concrete cylinder mold		Each	\$3.00	\$0.00
Photoionization detector (PID) rental	1	Day	\$75.00	\$75.00
Flameionization detector (FID) rental		Day	\$85.00	\$0.00
Hand auger kit		Day	\$30.00	\$0.00
Nuclear density gauge		Day	\$125.00	\$0.00
Sampling conduit	10'	section	\$4.00	\$0.00
Rotohammer		Day	\$25.00	\$0.00
Vapor pin		Each	\$60.00	\$0.00
Vapor sampling kit		Day	\$25.00	\$0.00
<b>SURVEYING</b>				
3/4-inch irons		Each	\$4.00	\$0.00
GPS unit/total station		Hour	\$20.00	\$0.00
GPS site mapping unit		Day	\$50.00	\$0.00
Level/laser level		Hour	\$5.00	\$0.00
Marking paint		Each	\$5.00	\$0.00
Survey chasers		Each	\$0.30	\$0.00
Survey hubs		Each	\$0.60	\$0.00
Survey lath		Each	\$0.75	\$0.00
<b>MISCELLANEOUS</b>				
55-gallon drums		Each	\$55.00	\$0.00
Air compressor		Day	\$40.00	\$0.00
Air sparge				



**Task 3 - Sub-Slab Sampling**

**Total Estimated Analytical Costs:**

Parameter	Soil Samples	Soil Dup	Methanol Fld Blank	Cost \$	Soil Subtotal	GW Samples	Water Dup	Trip Blank	Rinsate Blank	Cost \$	Water Subtotal	Air	Cost \$	Air Subtotal
VOC, TO-15					\$0						\$0	6	\$200	\$1,200
<b>Totals</b>	0	0	0		\$0	0	0	0	0		\$0	6		\$1,200

Total Estimated Costs without markup = **\$1,200**

**Task 4 - Indoor Air Sampling**

**Total Estimated Analytical Costs:**

Parameter	Soil Samples	Soil Dup	Methanol Fld Blank	Cost \$	Soil Subtotal	GW Samples	Water Dup	Trip Blank	Rinsate Blank	Cost \$	Water Subtotal	Air	Cost \$	Air Subtotal
VOC, TO-15					\$0						\$0	3	\$200	\$600
<b>Totals</b>	0	0	0		\$0	0	0	0	0		\$0	3		\$600

Total Estimated Costs without markup = **\$600**