



PETROLEUM STORAGE TANK DIVISION

Reimbursable Cost Guidelines

the
Texas Natural Resource
Conservation Commission P.O. Box 13087, Austin, Texas 78711-3087

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INTRODUCTION

The objective of this document is to provide guidance for the evaluation of costs incurred in the performance of corrective action activities associated with Leaking Petroleum Storage Tank (LPST) sites.

The guidelines are not intended to set pricing for specific activities or to remove an element of competition for the petroleum storage tank industry. Rather, the guidelines reflect the amount that the TNRCC will reimburse for activities in all but extraordinary cases. Only costs that are at or below the published values in these guidelines will be reimbursed unless a site-specific justification for costs exceeding the guidelines is submitted and approved.

The Reimbursable Cost Guidelines will be utilized by the TNRCC to evaluate and process all cost proposals and reimbursement claims for corrective action activities associated with LPST sites. The evaluation will utilize the guidelines in effect at the time the activities were performed.

The format of this document will allow individuals who are creating workplans and cost proposals for various corrective action activities to arrive at nearly the same total cost that the TNRCC would approve on a review of a workplan and cost proposal.

SECTION 1: ACTIVITIES

The following section presents the various corrective action activities, or phases/subphases of work, normally conducted at an LPST site. Every effort has been made to put the reimbursable costs for these activities into a format that is usable by owner/operators, contractors and consultants, and the TNRCC to preapprove workplans and cost proposals and to review applications for reimbursement.

The maximum reimbursable cost for the generation of a workplan and cost proposal is \$115.00. This amount is applicable to the first approved workplan and cost proposal for a given activity. If the original workplan and cost proposal submitted to the TNRCC is unacceptable, the costs associated with that workplan and cost proposal are not reimbursable.

In addition, please be aware that the submission of a new cost proposal to gain preapproval for a portion of an activity omitted from a previous workplan and cost proposal is not reimbursable.

Each activity that follows will contain, where appropriate, a worksheet for that specific activity. In addition, each worksheet will contain the reimbursable costs for the various subphases of each activity, with accompanying notes. These costs are condensed from the unit costs in Appendix A. For your reference, definitions and acronyms used in this document are contained in Appendix B.

ACTIVITY 00: TANK REMOVAL

This section is effective for tanks removed on or after March 12, 1993.

A tank removal is defined as the physical removal of an underground storage tank (UST) from the subsurface. Tank removals normally include the following activities: removal and replacement of surface material; excavation, disposal, and replacement of backfill material (see Note 1); tank removal and disposal; backfilling and compaction of the excavation; and any other activity typically associated with the tank removal process. Please note that overexcavation is not part of the tank removal process. This activity is covered in Activity 03: Excavation/Waste Management.

Eligibility for the reimbursement of a tank removal is based on two factors. First, the performance of necessary corrective action as defined by Title 30, Texas Administrative Code (TAC), Chapter 334, Subchapter H, §334.302 (a) (1) and (2) and second by §334.308 (b) and (c) (14) (see Note 2). The reimbursable amount will be based on the volume of the tanks removed as shown in the table below.

Reimbursement of tank removals will be based on the volume of the tank(s) removed and will have a maximum reimbursement limit of \$8,000.00 per LPST site. For underground storage tanks having a volume of 5,000 gallons or less, the reimbursable cost for removal will be \$1,000.00. For underground storage tanks having a volume of more than 5,000 gallons, the reimbursable cost for removal will be \$2,000.00.

TANK VOLUME (GALLONS)	REIMBURSABLE COST (PER TANK)	TOTAL MAXIMUM PER LPST SITE
5000 OR LESS	\$1,000.00	\$8,000.00
GREATER THAN 5000	\$2,000.00	\$8,000.00

Notes:

1: If the backfill from an eligible tank removal has been stored at the site and analytical results indicate that those soils are above levels that the TNRCC will approve for return to the tankhold, the owner/operator may request preapproval for the disposal of those soils under Activity 03: Excavation/Waste Management. If granted, the disposal of those soils will fall outside of the \$8,000.00 maximum for a site. Contact your TNRCC Region inspector or the TNRCC Central Office Project Coordinator for assistance.

2: On occasion, a tank removal will occur where contamination has not penetrated beyond the excavation zone of native soils of the tankhold, but where the backfill is contaminated above levels that the TNRCC will approve for return to the tankhold. While the tank removal will not be eligible for reimbursement as required in 30 TAC §334.302 (a) (1) and (2) and §334.308 (b) and (c)(14), the disposal or treatment of the backfill may be reimbursable under §334.308 (f) if the TNRCC directs and preapproves in writing the disposal or treatment of the backfill. Contact your Region inspector or the Central Office Project Coordinator for assistance.

ACTIVITY 01: INITIAL ABATEMENT

Initial abatement measures are those activities performed to reduce risk or threat to human health, safety, and the environment. These activities, as outlined in 30 TAC §334.77 (relating to Initial Abatement Measures and Site Check) can include any or all of the following:

- Monitor and mitigate any fire and safety hazard posed by vapors or free product;
- Removal of product from tanks to prevent further release; and/or
- Continuous free product removal (see note below).

Please note that reimbursement is based, in part, on the requirement that contamination must have penetrated the native soils around the tankhold and that the contamination be above action levels [30 TAC §334.302(a)(1), (2), and (3)].

Pursuant to 30 TAC §334.310(f) and §334.322, all initial abatement and emergency measures that continue after 72 hours, including continuous phase-separated product recovery, must be preapproved by the TNRCC prior to implementation. Contact the TNRCC Central Office Project Coordinator or the local TNRCC Region inspector for assistance. Costs for initial abatement submitted in the Application for Reimbursement should be identified and submitted with justification to the TNRCC. All costs associated with initial abatement are subject to verification. All unit costs incurred during Initial Abatement will be reimbursed based on these Reimbursable Cost Guidelines.

Costs for Initial Abatement must be preapproved after 72 hours. Use the worksheet under Activity 02: PSH Recovery to prepare cost proposals for additional abatement work.

Note: Please refer to the definition of “free product,” “recoverable free product,” and “free product migration” in Appendix B.

ACTIVITY 02: PHASE-SEPARATED HYDROCARBON (PSH) RECOVERY

This subsection will be used for the recovery of Phase Separated Hydrocarbons (PSH, Phase Separated Petroleum, or free product- See Note below) after the Initial Abatement phase. In addition, the worksheet in this section will be used for preapproval of Initial Abatement activities after the first 72 hours of site work.

30 TAC §334.310 (f) states that the continuous recovery of PSH needs preapproval after the Initial Abatement period of 72 hours. In cases where free product poses an imminent danger to human health, safety, and the environment, 30 TAC §334.79 requires that the owner/operator remove PSH to “the maximum extent practicable.” If an emergency situation extends beyond 72 hours, contact the TNRCC Central Office Project Coordinator or the local TNRCC Region inspector for assistance. For non-emergency situations, the Release Report required by §334.77 (b) should be submitted with a workplan and cost proposal either for the continued recovery of free product, or for the preparation of an Interim Corrective Action Plan (ICAP) for the installation of a free product recovery system. If the development of an ICAP is approved, and the ICAP itself is approved, the actual installation of the recovery system is discussed under Activity 09: Remediation System Installation.

Note: Please refer to the definitions of “free product,” “free product migration,” “LNAPL,” and “recoverable free product” in Appendix B.

WORKSHEET FOR THE MANUAL RECOVERY OF PSH AND CONTINUING INITIAL ABATEMENT

Part A: Personnel Costs

Section 1: ICAP Generation - See Note 1				
ITEM	ACTIVITY	HOURS/UNITS	RATE	TOTAL
ICAP	Preparation and Submission	Lump	\$1,825.00	\$1,825.00
			Total, Section 1	\$1,825.00
Section 2: Office Costs (See Note 2)				
ITEM	ACTIVITY	HOURS/UNITS	RATE	TOTAL
FAR- PSH Recovery or System O&M	Report Preparation & Submission	1	\$260.00	\$260.00
Project Manager (PM)	Management/Regulatory Interaction	.5/Month	\$80.00	
Staff E/G/H (SF)	Data Review/Update Files	.5/Month	\$70.00	
Cost Proposal/Workplan	Cost Proposal/Workplan Preparation & Submission	1	\$115.00	\$115.00
			Total, Section 2	

Section 3: Field Personnel Costs				
ITEM	ACTIVITY	# OF WELLS	\$/WELL	TOTAL
Technician I (T1)	Measure PSH, Remove PSH - <75' deep		\$40.00	
Technician I (T1)	Measure PSH, Remove PSH - 76' To 110' deep		\$60.00	
Technician I (T1)	Measure PSH, Remove PSH - > 110' deep		\$80.00	
			Subtotal, Section 3	
			# of Site Visits	
			Total, Section 3	
TOTAL, PART A				

Part B: Equipment Costs - See Note 3

ITEM	UNITS	UNIT COST	TOTAL
Absorbent Socks		\$10.00	
Passive Skimmer (Small)		\$350.00	
Passive Skimmer (Large)		\$750.00	
Dedicated PVC Bailer		\$15.00	
Drums		\$40.00	
Small Items		\$20.00/Site/Day	
(Other)			
(Other)			
(Other)			
		Subtotal, Part B	
		15% Mark-up	
TOTAL, PART B			

Part C: Waste Management Costs

ITEM	UNIT COST	UNITS	TOTAL
Vacuum Truck	\$75.00/Hour		
Fluid Disposal	\$0.40/Gallon		
		Subtotal	
		10% Mark-up	
TOTAL, PART C			

Part D: Travel Costs - See Note 4

ITEM	UNITS/HOURS	RATE	TOTAL
Equipment Truck		\$140.00/Day	
Mileage (Over 100 Miles, Round Trip)		\$0.31	
Travel Time		\$40.00/Hour	

Airfare		By Need	
Per Diem		\$80.00/Day	
		TOTAL, PART D	

Part E: Other Costs - See Note 3

ITEM	UNITS	RATE	TOTAL
		Subtotal	
		15% Mark-up	
TOTAL, PART E			

TOTAL ACTIVITY COSTS, PARTS A-E

Notes:
1: Please refer to Appendix A: Unit Costs for a breakdown of report generation costs.
2: Please refer to Appendix A: Unit Costs for a breakdown of personnel costs.
3: Mark-up is for subcontracted expenses only.
4: Please refer to the travel section of Appendix A: Unit Costs before preparing this Section.

ACTIVITY 03: EXCAVATION/WASTE MANAGEMENT

This subsection will be used when contaminated soils will be excavated, transported, and disposed, or when a significant quantity of contaminated water collects in an excavation. Do not use this section for the disposal of soil or water generated as a result of other activities, such as drilling, remedial system installation, groundwater monitoring, or operation, maintenance, and performance. That waste management is included as a line item in those activities. The worksheet presented below has been divided based on sub-phases of the overall activity. Not all parts may be applicable to all situations, so use only those sections that are specific to your needs to determine reimbursable costs.

WORKSHEET FOR EXCAVATION/WASTE MANAGEMENT						
SOILS TABLE - Determining the Quantities to be Used in the Worksheet						
EXCAVATED UNIT	WIDTH (FT)	LENGTH (FT)	SURFACE AREA (SQFT)	DEPTH (FT)	IN SITU VOL (CFT)	IN SITU VOL (CY)
Original Excavation						
Overexcavation Area 1						
Overexcavation Area 2						
Overexcavation Area 3						
Overexcavation Area 4						
					Total Surface Area, Areas 1-4, in Square Feet	
					Total In Situ Volume, areas 1-4, in Cubic Yards	
Part A: Personnel Costs						
Section 1: Office and Fixed Field Costs						
ITEM	ACTIVITY	UNITS	UNIT COST	TOTAL		
Project Manager (PM)	Management, Regulatory Interaction	2	\$80.00	\$160.00		
Field E/G/H (FD)	Initial site set-up and coordination	3	\$65.00	\$195.00		
Field Activity Report	Preparation and Submission	1	\$485.00	\$485.00		
Workplan/Cost Proposal	Preparation and Submission	1	\$115.00	\$115.00		
					Total, Section 1	\$995.00
Section 2: Field Oversight Costs - See Note 1						
ITEM	UNITS	UNIT COST	TOTAL			
Field E/G/H (FD), Technician II (T3)	(Total From Soils Table)	\$5.00/CY				
					Total, Section 2	
TOTAL, PART A						
Part B: Excavation and Remove/Replace Cover - See Note 2						
ACTIVITY	UNITS	UNIT COST	TOTAL			
Remove Cover (Asphalt) - Total From Soils Table		\$2.50/SqFt				
Remove Cover (Concrete) - Total From Soils Table		\$4.00/SqFt				

Excavate Soils - Total In Situ Volume From Soils Table		\$9.00/CY	
Visqueen, 1 20' x 100' roll/100 cy, 1 roll minimum		\$60.00/Roll	
Import Backfill - Total In Situ Volume from Soils Table X 1.3		\$11.00/CY	
Compact Backfill		\$9.00/CY	
Replace Cover (Asphalt) - From Soils Table		\$3.50/SqFt	
Replace Cover (Concrete) - From Soils Table		\$5.50/SqFt	
Disposables (1 unit per site day)		\$20.00	
		Subtotal, Part B	
		15% Mark-up	
		TOTAL, PART B	

Part C: Waste Management Costs- See Note 3

ACTIVITY	UNITS	UNIT COST	TOTAL
Load & Haul Excavated Soils - Total In Situ Volume from Soils Table X 1.3		\$14.00/CY	
Mileage for Soils Disposal, > 50 miles one way	Loaded Mile	\$2.50/mile	
Dispose Soils <1500 TPH in Landfill - See Note 4		\$10.50/CY	
Dispose Soils >1500 TPH in Landfill		\$45.00/CY	
Dispose Soils >1500 TPH by Asphalt Recycling		\$35.00/CY	
Dispose Soils >1500 TPH by Bioremediation		\$35.00/CY	
Dispose Soils >1500 TPH by Thermal Desorption		\$45.00/CY	
Vacuum Truck (Fluids Transport for Disposal)		\$75.00/Hr	
Fluids Disposal		\$0.40/Gal	
Subchapter H Discharge or Alternate Disposal Method (Describe in Work plan)		As Needed	
		Subtotal, Part C	
		10% Mark-up	
		TOTAL, PART C	

Part D: Analytical Costs - See Note 5

ITEM	UNITS	UNIT COST	TOTAL	ITEM	UNITS	UNIT COST	TOTAL
TPH - Soil		\$47.50		TCLP Lead		\$93.00	
TPH (Rush) - Soil		\$71.25		TCLP Benzene		\$152.00	
BTEX - Soil		\$62.50		TPH - Water		\$49.00	
BTEX (Rush) - Soil		\$93.75		TPH (Rush) - Water		\$73.50	
PAH (8100) - Soil		\$148.00		BTEX - Water		\$62.50	
PAH (8270) - Soil		\$222.00		BTEX (Rush) - Water		\$93.75	
Total Lead - Soil		\$31.00		Total Lead - Water		\$31.00	
Total Lead (Rush) - Soil		\$46.50		Total Lead (Rush) - Water		\$46.50	
TOX - Soil		\$98.00		Shipping		\$5.00/Sample	

8 RCRA Metals - Soil		\$150.00		(Other)			
						Subtotal, Part D	
						10% Mark-up	
						TOTAL, PART D	

Part E: Travel Costs - See Note 6

ITEM	UNIT COST	UNITS/HOURS	TOTAL
Equipment Truck	\$140.00/Day		
Mileage (over 100, Round Trip)	\$0.31/Mile		
Travel Time	\$50.00 or \$65.00/Hour		
Per Diem	\$80.00/Day		
Airfare	By Need		
			TOTAL, PART E

TOTAL ACTIVITY COSTS, PARTS A-E

Notes:

1: Preapproval and reimbursement will be based on the expectation that 300 CY of soils can be excavated, staged and sampled in a 10-hour day, and that 300 CY of soils can be loaded, hauled, and disposed while 300 CY of soils can be imported and compacted, again in a single day. Oversight time may be split among personnel in any way the RCAS desires. The \$5.00 per cubic yard of excavated soils is the maximum reimbursable cost for all phases of the activity. If the activity consists of only disposing of previously stockpiled soils and/or importing and compacting fill, the oversight cost will be \$2.50/CY.

2: Refer to Appendix A, Part 6 for a breakdown of these costs. Mark-up is allowed on subcontracted costs only.

3: Refer to Appendix A, Part 7 for a breakdown of these costs.

4: The noted cost for disposal of impacted soils is a maximum without justification. Reimbursable costs will be actual landfill receipts, plus allowable mark-up. Transport and landfill receipts must be submitted with the application for reimbursement.

5: Refer to Appendix A, Part 2 for a breakdown of analytical costs.

6: Refer to Appendix A, Part 4 for a breakdown of travel costs

ACTIVITY 04: SITE ASSESSMENT

This subsection will be used for the installation of wells or borings to define the impact of a release or when the installation of a remediation system is approved by the TNRCC. The worksheet is divided to allow the preparation of numerous types of cost proposals based on need. Use only those sections that are required for the specific phase of work. A Risk Assessment (RA) will normally be done in conjunction with Site Assessment work, and those report generation costs are included here. **If a site does not require additional field work to complete an RA, refer to Activity 05: Risk Assessment.**

WORKSHEET FOR SITE ASSESSMENTS				
Part A: Personnel Costs - See Note 1				
Section 1: Planning, Fixed Field and Office Costs, Gaining Off-site Access - See Note 2				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Preliminary Planning - See Note 3	Site Familiarization	\$390.00	1	
Water Well/ Other Facility Search	Identify Other Wells/Facilities Near Site	\$300.00	1	
Walking Receptor Survey	Field Time to Identify Receptors	\$300.00	1	
Site/Monitoring Well Survey	Determine Well Elevations	\$300.00	1	
Workplan/Costs Proposal	Preparation and Submission	\$115.00	1	\$115.00
Offsite Access- See Note 3	Research ownership and make initial written request for Offsite Drilling	\$320.00/Offsite Property		
			Total, Section 1	
Section 2: Variable Office and Field Personnel Costs - See Note 4				
Subsection 2A: Basic Report Generation Costs				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
No Report Required	Submit Results (Labs and Drillers' Logs) Only	\$0.00	0	
FAR - Site Assessment	Preparation and Submission	\$485.00	1	
Plan A Risk Assessment Report Form	Preparation and Submission	\$2,140.00	1	
Plan B Risk Assessment	Preparation and Submission	\$5,715.00	1	
RA Update	Preparation and Submission	\$485.00	1	
			Total, Subsection 2A	
Subsection 2B: Additional Office Personnel Costs, Conventional Drilling, > 3 Wells/Borings per event				
ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Project Manager (PM)	Project Oversight	\$40.00/Well or Boring		
Draftsperson I (D1)	Boring & Well Logs, CAD	\$22.50/Well or Boring		
Word Processor (WP)	Report Prep	17.50/Well or Boring		
			Total, Subsection 2B	
Subsection 2C: Additional Office Personnel Costs, Direct Push				

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Project Manager (PM), 1st Day	Project Oversight	\$80.00	2	\$160.00
Draftsperson I (D1), 1st Day	Boring & Well Logs, CAD	\$45.00	2	\$90.00
Word Processor (WP), 1st Day	Report Prep	\$35.00	1	\$35.00
Project Manager (PM), Each Addt'l ½ Day	Project Oversight	\$40.00		
Draftsperson I (D1), Each Addt'l ½ Day	Boring & Well Logs, CAD	\$22.50		
Word Processor (WP), Each Addt'l ½ Day	Report Prep	\$17.50		
			Total, Subsection 2C	

Subsection 2D: Drilling in Sand/Silt/Clay with Hollow Stem Augers

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, 25' Minimum, Lump Sum, 2 Hrs./Boring	\$220.00/Boring		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, 25' Minimum, Lump Sum, 2.5 Hrs./Well	\$275.00/Well		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, Sum of Footage Over 25', All Borings	\$7.69/Foot		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, Sum of Footage Over 25', All Wells	\$9.91/Foot		
			Total, Subsection 2D	

Subsection 2E: Drilling with Air/Mud Rotary

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, 25' Minimum, Lump Sum, 1.25 Hrs./Boring	\$138.00/Boring		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, 25' Minimum, Lump Sum, 2.5 Hrs./Well	\$275.00/Well		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, Sum of Footage Over 25', All Borings	\$5.12/Foot		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, Sum of Footage Over 25', All Wells	\$9.40/Foot		
			Total, Subsection 2E	

Subsection 2F: Drilling with Air Coring

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, 25' Minimum, Lump Sum, 2 Hrs./Boring	\$220.00/Boring		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, 25' Minimum, Lump Sum, 2.5 Hrs./Well	\$275.00/Well		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Borings, Sum of Footage Over 25', All Borings	\$7.33/Foot		
Field Engineer/Geologist (FD) & Technician I (T1)	Install Wells, Sum of Footage Over 25', All Wells	\$9.57/Foot		
			Total, Subsection 2F	

Subsection 2G: Direct Push

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Field Engineer/Geologist (FD) & Technician I (T1)	First Day, Lump Sum	\$1,100.00	1	\$1,100.00
Field Engineer/Geologist (FD) & Technician I (T1)	Each Additional ½ Day	\$550.00		
			Total, Subsection 2G	
			Total, Section 2	

TOTAL, PART A

Part B: Drilling Costs - See Note 5

Section 1: Conventional Drilling Costs

Subsection 1A: Worksheet For Conventional Drilling Costs Drilling Method: Hollow Stem Augers Air/Mud Rotary Air Coring

BORINGS				2" WELLS				4" WELLS			
ITEM	UNITS	\$/UNIT	TOTAL	ITEM	UNITS	\$/UNIT	TOTAL	ITEM	UNITS	\$/UNIT	TOTAL
First 25 Feet				First 25 Feet				First 25 Feet			
26 - 50 Feet				26 - 50 Feet				26 - 50 Feet			
51 - 100 Feet				51 - 100 Feet				51 - 100 Feet			
> 100 Feet				> 100 Feet				> 100 Feet			
SUBTOTAL				SUBTOTAL				SUBTOTAL			

6" WELLS				OTHER _____				SUBTOTALS	
ITEM	UNITS	\$/UNIT	TOTAL	ITEM	UNITS	\$/UNIT	TOTAL	BORINGS	
First 25 Feet				First 25 Feet				2" Wells	
26 - 50 Feet				26 - 50 Feet				4" Wells	
51 - 100 Feet				51 - 100 Feet				6" Wells	
> 100 Feet				> 100 Feet				Other	
SUBTOTAL				SUBTOTAL				Total, Subsection 1A	

Subsection 1B: Other Costs, Conventional Drilling

ITEM	ACTIVITY	UNIT COSTS	UNITS	TOTAL COST
Mobilization/Demobilization	First 50 Miles, One Way	\$245.00	1	
Mobilization/Demobilization	Mileage> 50, Maximum Additional 200 One Way	\$2.50/Mile		
Drill Crew Per Diem	Each Overnight Stay, If Required	\$190.00/Day		
Small Items (1 unit/ site day)		\$20.00		
			Total, Subsection 1B	
			Subtotal, Section 1	
			15% Mark-up	
			Total, Section 1	

Section 2: Direct Push Technology

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Direct Push Unit	Install Borings	\$1,480.00/Day		
Direct Push Unit	Install Wells, Over Standard Unit Cost	\$12.50/Foot		
Direct Push Unit	Install Borings, if Total Footage < 118 Feet	\$12.50/Foot		
Mobilization/Demobilization	First 50 Miles, One Way	\$145.00	1	
Mobilization/Demobilization	Mileage > 50, Maximum Additional 200, One Way	\$1.90/Mile		

Drill Crew Per Diem	Each Overnight Stay, If Required	\$150.00/Day		
Small Items (1 unit/ site day)		\$20.00		
			Subtotal, Section 2	
			15% Mark-up	
			Total, Section 2	
TOTAL, PART B				

Part C: Waste Management Costs - See Note 7

ITEM	UNIT COST	UNITS	TOTAL
Vacuum Truck	\$75.00/Hour		
Fluids Disposal	\$0.40/Gallon		
Soils Disposal	\$250.00 Base + \$10.50/CY		
Soils Disposal	\$250.00 Base + \$45.00/Drum		
Subchapter H Discharge or Alternate Disposal Method	As Needed		
			Subtotal, Part C
			10% Mark-up
TOTAL, PART C			

Part D: Analytical Costs - See Note 6

ITEM	UNITS	UNIT COST	TOTAL
TPH - Soil		\$47.50	
BTEX - Soil		\$62.50	
TPH - Water		\$49.00	
BTEX - Water		\$62.50	
BTEX /MTBE - Water		\$85.00	
Total Lead - Soil		\$31.00	
PAH (8100) - Soil		\$148.00	
PAH (610) - Water		\$158.00	
PAH (8270) - Soil		\$222.00	
PAH (8270) - Water		\$249.00	
TDS - Water		\$15.00	
VOC - Soil		\$295.00	
VOC - Water		\$295.00	
8 RCRA Metals - Soil		\$150.00	
Soil Parameters		\$300.00	
Shipping		\$5.00/Sample	
(Other)			
(Other)			

	Subtotal, Part D	
	10% Mark-up	
TOTAL, PART D		

Part E: Travel Costs - See Note 8			
ITEM	UNIT COST	UNITS/HOURS	TOTAL
Equipment Truck	\$140.00/Day		
Mileage (over 100, Round Trip)	\$0.31/Mile		
Travel Time (Field Engineer/Geologist and/or Technician I)	\$65.00 and/or \$40.00/Hour		
Per Diem	\$80.00/Day/Person		
Airfare	By Need		
Disposable Bailers	\$8.00/Well		
Drums	\$40.00		
TOTAL, PART E			

TOTAL ACTIVITY COSTS, PARTS A-E	
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Notes:

1: Please refer to Appendix A, Part 1 for a breakdown of personnel costs.

2: Not all of these activities are applicable to all sites. Use only the items that relate directly to the site for which this worksheet is being used. If a licensed surveyor needs to be subcontracted and that cost exceeds the noted maximum of \$300.00, submit quotes with the cost proposal.

3: "Preliminary Planning" charges apply only to sites where a Risk Assessment has not been performed. Preliminary Planning activities should include a site history review, area geology/hydrogeology/lithology research, and the incorporation of the sensitive receptor survey data into the proposal for the risk assessment. Time for the Preliminary Planning consists of two hours each of Project Manager, Staff Geologist/Engineer, and Technician II time. These costs do not need preapproval prior to completing the activities because they are used to prepare the Site Assessment workplan and cost proposal. Preliminary Planning costs must be included in that cost proposal and be approved by the TNRCC to be reimbursable. "Offsite Access" costs include activities through the initial written request for access. If the initial written request is denied, an additional \$320.00 is available for the increased level of effort. If these costs are incurred, they must be documented up by submitting all written correspondence with the offsite landowner to the TNRCC with the application for reimbursement. All offsite access costs that exceed \$640.00 must be preapproved through a change order.

4: Not all of these activities are applicable to all sites. Use only the items that relate directly to the site for which this worksheet is being used. Refer to Appendix A, Part 8 for Report Generation Costs.

5: Please refer to Appendix A, Part 3 for cost broken out by media. Use only one conventional drilling method for Section A. Use only the items that relate directly to the site for which this worksheet is being used. Mark-up may only be applied to subcontracted costs.

6: Please refer to Appendix A, Part 2 for additional laboratory analyses and costs. Mark-up is allowed only on subcontracted items.

7: Please refer to Appendix A, Part 7 for a breakdown of waste management costs.

8: Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs. "Travel Time" costs are based on the individual(s) traveling to the site on specific days to perform specific tasks. Define the work schedule in the workplan to back up all travel requests.

ACTIVITY 05: RISK ASSESSMENT

This subsection will be used when the need exists to quantify the risk of the contamination at a site. There are two Risk Assessments (RAs) that will normally be conducted, and are known as "Plan A" and "Plan B" RAs. If sufficient assessment work has been done at a site, it may be possible to generate either a Plan A or a Plan B RA without conducting further field work. **If additional field work is necessary to generate an RA, please refer to "Activity 04: Site Assessment."** The costs noted here are for report generation only.

PLAN A RISK ASSESSMENT REPORT GENERATION COSTS - See Note 1
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PERSONNEL TYPE	RATE/HOUR	HOURS	TOTAL
Principal Engineer (P3)	\$110.00	1	\$110.00
Project Manager (PM)	\$80.00	12	\$960.00
Staff Geologist/Engineer (SF)	\$70.00	8	\$560.00
Draftsperson II (D2)	\$50.00	6	\$300.00
Word Processor (WP)	\$35.00	6	\$210.00
		TOTAL	\$2,140.00

PLAN B RISK ASSESSMENT REPORT GENERATION COSTS - See Note 1

PERSONNEL TYPE	RATE/HOUR	HOURS	TOTAL
Principal Engineer (P3)	\$110.00	6	\$660.00
Project Manager (PM)	\$80.00	32	\$2,560.00
Staff Geologist/Engineer (SF)	\$70.00	25	\$1,750.00
Draftsperson II (D2)	\$50.00	10	\$500.00
Word Processor (WP)	\$35.00	7	\$245.00
		TOTAL	\$5,715.00

Notes:

1: A total of \$115.00 above the noted costs is available for reimbursing the cost of the workplan and cost proposal to generate a "stand alone" risk assessment. Please refer to TNRC Guidance Manuals when performing Risk Assessments.

ACTIVITY 06: CORRECTIVE ACTION PLAN (CAP) FEASIBILITY TESTING

This subsection will be used when testing is required to complete a CAP. This testing may include aquifer pump tests, slug and bail tests, soil vapor extraction tests, or a combination of any of these tests. Costs are included in this activity to format information gained in the field for inclusion into the CAP Testing Report. For the cost of generating the CAP, use the section entitled “Activity 08: Corrective Action Plan (CAP) Preparation.”

Part 1 of the worksheet is designed to provide reimbursable personnel costs for the various kinds of tests to be conducted at the site, whether 6-hour, 12-hour, or 24-hour tests. The costs for each kind of test should be added together to reflect total personnel costs for the activity. Then complete the subsequent parts of the worksheet relating to equipment, lab testing, waste disposal, and travel time for the specific tests being conducted to obtain total activity costs.

WORKSHEET FOR CAP TESTING				
Part A: Personnel Costs - See Note 1				
Section 1: Slug and Bail Testing				
ITEM	ACTIVITY	RATE	HOURS/UNITS	TOTAL
Senior Engineer/Geologist(P2)	Office Preparation, Project Management, Debriefing	\$95.00	3	\$285.00
Field Engineer/Geologist (FD)	Office Preparation, Field Work, Debriefing	\$65.00	10	\$650.00
Associate Engineer/Geologist (P1)	Data Analysis, Report Preparation	\$85.00	5	\$425.00
Technician II (T2)	Office Preparation, Field Work, Debriefing	\$45.00	10	\$450.00
Draftsperson II (D2)	Data Formatting	\$50.00	1	\$50.00
Word Processor (WP)	Data Formatting	\$35.00	2	\$70.00
Additional time over 6 hours	Field time, including FD and T2	\$110.00		
PI-7 Standard Exemption Form	Preparation and submission	\$195.00	If Required	
Workplan & Costs Proposal		\$115.00	1	\$115.00
			Total, Section 1	
Section 2: Aquifer Pump Testing				
ITEM	ACTIVITY	RATE	HOURS/UNITS	TOTAL
Senior Engineer/Geologist (P2)	Office Preparation, Project Management, Debriefing	\$95.00	3	\$285.00
Field Engineer/Geologist (FD)	Office Preparation, Field Work, Debriefing	\$65.00	10	\$650.00
Associate Engineer/Geologist (P1)	Data Analysis, Report Preparation	\$85.00	5	\$425.00
Technician II (T2)	Office Preparation, Field Work, Debriefing	\$45.00	10	\$450.00
Draftsperson II (D2)	Data Formatting	\$50.00	1	\$50.00
Word Processor (WP)	Data Analysis, Report Preparation	\$35.00	2	\$70.00
Additional time over 6 hours, per hour	Field time, including FD and T2	\$110.00		
PI-7 Standard Exemption Form	Preparation and submission	\$195.00	If Required	
Workplan & Cost Proposal		\$115.00	1	\$115.00

				Total, Section 2	
Section 3: Soil Vapor Extraction Testing					
ITEM	ACTIVITY	RATE	HOURS/UNITS	TOTAL	
Senior Engineer/Geologist (P2)	Office Preparation, Project Management, Debriefing	\$95.00	3	\$285.00	
Field Engineer/Geologist (FD)	Office Preparation, Field Work, Debriefing	\$65.00	10	\$650.00	
Associate Engineer/Geologist (P1)	Data Analysis, Report Preparation	\$85.00	5	\$425.00	
Technician II (T2)	Office Preparation, Field Work, Debriefing	\$45.00	10	\$450.00	
Draftsperson II (D2)	Data Formatting	\$50.00	1	\$50.00	
Word Processor (WP)	Data Analysis, Report Preparation	\$35.00	2	\$70.00	
Additional time over 6 hours, per hour	Field time, including FD and T2	\$110.00			
PI-7 Standard Exemption Form	Preparation and submission	\$195.00	If Required		
Workplan & Cost Proposal		\$115.00	1	\$115.00	
				Total, Section 3	
Section 4: Dual-Phase Extraction Testing					
ITEM	ACTIVITY	RATE	HOURS/UNITS	TOTAL	
Senior Engineer/Geologist (P2)	Office Preparation, Project Management, Debriefing	\$95.00	3	\$285.00	
Field Engineer/Geologist (FD)	Office Preparation, Field Work, Debriefing	\$65.00	15	\$975.00	
Associate Engineer/Geologist (P1)	Data Analysis, Report Preparation	\$85.00	8	\$680.00	
Technician II (T2)	Office Preparation, Field Work, Debriefing	\$45.00	15	\$675.00	
Draftsperson II (D2)	Data Formatting	\$50.00	2	\$100.00	
Word Processor (WP)	Data Analysis, Report Preparation	\$35.00	3	\$105.00	
Additional time over 6 hours, per hour	Field time, including FD and T2	\$110.00			
PI-7 Standard Exemption Form	Preparation and submission	\$195.00	If Required		
Workplan & Cost Proposal		\$115.00	1	\$115.00	
				Total, Section 4	
TOTAL, PART A					
Part B: Equipment Costs - See Note 2					
ITEM	UNIT COST/DAY	UNITS	TOTAL		
Datalogger (2 channel)	\$65.00				
Datalogger (8 channel)	\$115.00				
Generator (3500 Watt)	\$75.00				
Compressor (5 Horsepower)	\$25.00				
Pressure Transducer	\$35.00				
185 cfm Compressor	\$95.00				
Regenerative blower (1.5 Horsepower)	\$20.00				
Liquid ring pump (for dual-phase extraction test) - See Note 3	\$650.00				

SVE Trailer (contains all equipment)	\$500.00		
Air stripper	\$250.00		
Holding tank (1,000 Gallon)	\$25.00		
Carbon Canister, includes installation, recycling, and/or disposal	\$750.00		
Holding Tank (5,000 Gallon)	\$35.00		
Small Items	\$20.00/Site/Day		
Miscellaneous Supplies	\$50.00/Test		
(Other)			
(Other)			
		Subtotal, Part B	
		15% Mark-up	
TOTAL, PART B			

Part C: Waste Management Costs - See Note 4			
ITEM	UNIT COST	UNITS	TOTAL
Vacuum Truck	\$75.00/Hour		
Fluids Disposal	\$0.40/Gallon		
Subchapter H Discharge or Alternate Disposal Method (Describe in Work Plan.)	As Needed		
		Subtotal, Part C	
		10% Mark-up	
TOTAL, PART C			

Part D: Analytical Costs - See Note 5			
ITEM	UNIT COST	UNITS	TOTAL
TPH (Water)	\$49.00		
BTEX (Water)	\$62.50		
BTEX (Air)	\$62.50		
Total Lead (Water)	\$31.00		
(Other)			
(Other)			
Tedlar Bags for Air Samples	\$7.50		
Shipping	\$5.00/Sample		
		Subtotal, Part D	
		10% Mark-up	
TOTAL, PART D			

Part E: Travel Costs- See Note 6

ITEM	UNIT COST	UNITS/HOURS	TOTAL
Equipment Truck	\$140.00/Day		
Mileage (over 100, Round Trip)	\$0.31		
Travel Time (FD and T2 combined)	\$110.00/Hour		
Per Diem	\$80.00/Person/Day		
Airfare	By Need		
TOTAL, PART E			

TOTAL ACTIVITY COSTS, PARTS A-E	
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Notes:

- 1:** Please refer to Appendix A, Part 1 for a breakdown of personnel costs.
- 2:** Please refer to Appendix A, Part 5 for a breakdown of equipment costs. Mark-up is allowed for rented items only and rental receipts must accompany the application for reimbursement.
- 3:** Every effort should be made to schedule two sites consecutively for testing with a liquid-ring pump due to the high rental costs for this equipment.
- 4:** Please refer to Appendix A, Part 7 for a breakdown of waste management costs.
- 5:** Please refer to Appendix A, Part 2 for additional laboratory analyses and costs. Mark-up is allowed only on subcontracted items.
- 6:** Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs.

ACTIVITY 07: GROUNDWATER MONITORING

This subsection will be used at sites where no remediation system is in operation but periodic groundwater monitoring will be conducted, or when groundwater testing is necessary to determine if natural attenuation is an appropriate remedial option for a site. Sites where a remediation system is in operation and groundwater monitoring is also required will use the section entitled "Activity 10: Operation, Monitoring, & Performance" to develop cost proposals.

WORKSHEET FOR GROUNDWATER MONITORING				
Part A: Personnel Costs - See Note 1				
Section 1: Fixed Annual Costs				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Project Manager (PM)	Management, Regulatory Interaction	\$80.00	5	\$400.00
FAR- Annual Groundwater Monitoring Report	Preparation and Submission	\$440.00	1	
FAR - Single Monitoring Event	Preparation and Submission	\$260.00	1	
Workplan & Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	
Section 2: First Quarter Personnel Costs or Single Monitoring Event				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Staff Engineer/Geologist (SF)	Field Preparation, Data Formatting	\$70.00	2	\$140.00
Technician I (T1)	Purge and Sample Wells, First 25'	\$40.00/ Well		
Technician I (T1)	Purge and Sample Wells, Each Additional 25' (75' Max)	\$10.00/Additional 25'/Well		
			Total, Section 2	
Section 3: Second Quarter Personnel Costs				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Staff Engineer/Geologist (SF)	Field Preparation, Data Formatting	\$70.00	2	\$140.00
Technician I (T1)	Purge and Sample Wells, First 25'	\$40.00/ Well		
Technician I (T1)	Purge and Sample Wells, Each Additional 25' (75' Max)	\$10.00/Additional 25'/Well		
			Total, Section 3	
Section 4: Third Quarter Personnel Costs				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Staff Engineer/Geologist (SF)	Field Preparation, Data Formatting	\$70.00	2	\$140.00
Technician I (T1)	Purge and Sample Wells, First 25'	\$40.00/ Well		
Technician I (T1)	Purge and Sample Wells, Each Additional 25' (75' Max)	\$10.00/Additional 25'/Well		
			Total, Section 4	
Section 5: Fourth Quarter Personnel Costs				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL

Staff Engineer/Geologist (SF)	Field Preparation, Data Formatting	\$70.00	2	\$140.00
Technician I (T1)	Purge and Sample Wells, First 25'	\$40.00/ Well		
Technician I (T1)	Purge and Sample Wells, Each Additional 25' (75' Max)	\$10.00/Additional 25'/Well		
			Total, Section 5	
				TOTAL, PART A

Part B: Equipment Costs - See Note 2

ITEM	UNIT COST	UNITS	TOTAL
Disposable bailers	\$8.00/well		
Small items	\$20.00/site/day		
Drums (55-gallon, for purge water)	\$40.00		
(Other)			
(Other)			
			Subtotal, Part B
			15% Mark-up
TOTAL, PART B			

Part C: Waste Management Costs - See Note 3

ITEM	UNIT COST	UNITS	TOTAL
Vacuum Truck	\$75.00/Hour		
Fluid Disposal	\$0.40/Gallon		
Subchapter H Discharge or Alternate Disposal Method (Describe in Workplan)	As Needed		
			Subtotal, Part C
			10% Mark-up
TOTAL, PART C			

Part D: Analytical Costs - See Note 4

ANALYTICAL TEST	UNIT COST	UNITS	TOTAL
TPH/BTEX	\$111.50		
TPH/BTEX w/ MTBE	\$134.00		
TDS	\$15.00		
PAH (610)	\$158.00		
PAH (8270)	\$249.00		
Chlorides	\$18.00		
Iron	\$10.00		
Nitrates	\$24.00		
Phosphates	\$24.00		
Sulfates	\$24.00		
Total Organic Carbon (TOC)	\$32.00		

Shipping	\$5.00/Sample		
(OTHER)			
(OTHER)			
		Subtotal, Part D	
		10% Mark-up	
TOTAL, PART D			

Part E: Travel Costs - See Note 5

ITEM	UNIT COST	UNITS/HOURS	TOTAL
Equipment Truck	\$140.00/day		
Mileage (over 100 miles, round trip)	\$0.31/mile		
Travel Time	\$40.00/hour		
Per Diem	\$80.00/day		
Air Fare	By Need		
TOTAL, PART E			

TOTAL ACTIVITY COSTS, PARTS A-E

Notes:

1: Please refer to Appendix A, Part 1 for a breakdown of personnel costs. If Groundwater Monitoring is recommended as a result of a CAP - No Remediation System, the cost for the workplan and cost proposal will be included in the reimbursable cost for that CAP.

2: Please refer to Appendix A, Part 5 for a breakdown of equipment costs. Mark-up is allowed for subcontracted items only and receipts must accompany the application for reimbursement.

3: Please refer to Appendix A, Part 7 for a breakdown of waste management cost.

4: Please refer to Appendix A, Part 2 for additional laboratory analyses and costs. Mark-up is allowed only on subcontracted items. Sampling for inorganic components in groundwater can and should be conducted using field sensors and meters. An explanation for the use of an analytical laboratory to perform these tests must accompany the workplan and cost proposal.

5: Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs. The TNRCC will reimburse for a single T1 to perform all purging and sampling duties, both in site time and travel time.

ACTIVITY 08: CORRECTIVE ACTION PLAN (CAP) PREPARATION

This subsection will be used at sites where corrective action is necessary. The CAP will fall into one of two broad categories. The first category is a CAP that seeks to passively remediate the site by means of natural attenuation, the effectiveness of which will be confirmed by groundwater monitoring. This CAP may be developed following either a Plan A or a Plan B risk assessment. The second category is a CAP that recommends the installation of a remediation system to actively reduce the contaminant levels to the point where closure following a program of groundwater monitoring can be achieved. This CAP will be developed following the submission of a Plan B risk assessment.

Please note that some portions of these CAPs may require the participation of a Registered Professional Engineer. Please refer to 30 TAC §334.308 (g) (21) for information on when this participation is necessary.

CORRECTIVE ACTION PLAN - NO REMEDIATION SYSTEM			
PERSONNEL TYPE	RATE/HOUR	HOURS	TOTAL
Senior Engineer/Geologist (P2)	\$95.00	1	\$95.00
Project Manager (PM)	\$80.00	2	\$160.00
Staff Engineer/Geologist (SF)	\$70.00	4	\$280.00
Word Processor (WP)	\$35.00	3	\$105.00
Project Manager-OM&P Plan	\$80.00	2	\$160.00
Staff Engineer/Geologist-OM&P Plan	\$70.00	4	\$280.00
Word Processor (WP)-OM&P Plan	\$35.00	2	\$70.00
		TOTAL	\$1,150.00
CORRECTIVE ACTION PLAN - WITH REMEDIATION SYSTEM (See Notes)			
PERSONNEL TYPE	RATE/HOUR	HOURS	TOTAL
Principal Engineer (P3)	\$110.00	4	\$440.00
Associate Engineer (P1)	\$85.00	30	\$2,550.00
Project Manager (PM)	\$80.00	8	\$640.00
Staff Engineer/Geologist (SF)	\$70.00	24	\$1,680.00
Draftsperson II (D2)	\$50.00	20	\$1,000.00
Word Processor (WP)	\$35.00	10	\$350.00
		TOTAL	\$6,660.00
Notes:			
1: The listed costs include generation of maps and design drawings (to scale). They do not include the \$115.00 available for the generation of the workplan and cost proposal to produce these plans.			
2: The listed costs are for a baseline CAP with the installation of one remediation system (i.e., groundwater pump & treat, dual-phase extraction, or soil vapor extraction). Justification should be provided in the workplan and cost proposal, based on site-specific circumstances and the result of CAP testing, for out-of-scope costs. Requests for preapproval will be reviewed on a case-by-case basis.			
3: Quote/bid preparation costs are included in the CAP generation costs.			

ACTIVITY 09: REMEDIATION SYSTEM INSTALLATION

This subsection will be used to submit a workplan and cost proposal with either an Interim Corrective Action Plan (ICAP) (see Activity 02) or Corrective Action Plan (CAP) (see Activity 08). Each of the first four parts of the worksheet (Parts A1-A4) are constructed around one of four basic systems: PSH recovery, groundwater pump-and-treat, soil vapor extraction, and dual-phase extraction. Each of these systems has a baseline of three recovery wells. Each of the parts will have the option of combining other systems and adding or subtracting recovery wells. This will allow the development of an installation and start-up cost that is relevant to the needs of your site. **Only use the one of the first four parts that is most appropriate to your site.**

Because of the variable nature of remediation systems, the TNRCC has not developed standardized system costs. Each system will be constructed to meet site-specific remediation needs. The TNRCC has supplied various equipment types and equipment costs in Appendix A, Section 5, Equipment and Supplies. This section may be referred to when acquiring quotes for costing out the system designed in the ICAP or CAP. If necessary equipment differs from that contained in Appendix A, the preparer should supply three quotes with the cost proposal. If the tank owner/operator is in possession of appropriate and functional remediation equipment previously reimbursed by the TNRCC at another site, that equipment should be reused. The cost effectiveness of the proposed remediation system must be supported by documentation such as comparative quotes and technical statistics.

If the remediation program designed in the CAP is of short duration (9 months or less), or if the use of a capital component in the remediation system is expected to be of short duration, the option of renting or leasing the remediation system or the individual component should be evaluated. Sufficient quotes (at least three per option) for equipment lease/rental should be included with a cost-benefit analysis in the installation cost proposal to allow a determination of the most cost effective option to be made. When the remediation program designed in the CAP is of intermediate length (9 to 24 months), the option of purchasing and leasing or leasing-to-own the remediation equipment should be evaluated. Again, sufficient quotes (at least three per evaluated option) for equipment purchase/lease/lease-to-own should be included with a cost-benefit analysis in the installation cost proposal to allow a determination of the most cost effective option to be made. If the remediation program designed in the CAP is planned to last in excess of two years, remediation equipment purchase will be considered the most cost effective option. At least three quotes for equipment purchase should be included with the installation cost proposal. The cost of rented/leased/leased-to-own equipment will be reimbursed in the preapproved costs for Operation, Monitoring, & Performance (see Activity 10). The cost for purchased remediation systems will be reimbursed after the successful completion of the installation and start-up of the system in this Activity.

Please note that some portions of the installation process may require the participation of a Registered Professional Engineer. Please refer to 30 TAC §334.308 (g) (21) for information on when this participation is necessary.

WORKSHEET FOR REMEDIATION SYSTEM INSTALLATION AND START-UP				
Part A1: Consultant Office and Field Costs, PSH Recovery System - See Note 1				
Section 1: Installation and Startup of Basic 3-well System				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Senior Engineer (P2)	Project Oversight	\$95.00	1	\$95.00
Associate Engineer (P1)	Management, Regulatory Interaction, Field Oversight	\$85.00	7	\$595.00
Staff E/G/H (SF)	Field Preparation, Installation and Startup	\$70.00	20	\$1,400.00
Technician II (T2)	Field Preparation, Installation and Startup	\$45.00	32	\$1,440.00

PI-7 Standard Exemption Form	Preparation and Submission	\$195.00	If Required	
FAR- System Installation	Preparation and Submission	\$855.00	1	\$855.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	
Section 2: Add/Delete Wells (Any System) - Per Well				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	1	\$85.00
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00
Staff Engineer (SF)	Installation and Startup	\$70.00	4	\$280.00
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00
Technician II (T2)	Installation and Startup	\$45.00	8	\$360.00
			Subtotal, Section 2	\$840.00
			# of Wells to Add/Delete	
			Total, Section 2	
TOTAL, PART A1				

Part A2: Consultant Office and Field Costs, Groundwater Pump-and-Treat System - See Note 1

Section 1: Installation and Startup of Basic 3-well System				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Senior Engineer (P2)	Project Oversight	\$95.00	3	\$285.00
Associate Engineer (P1)	Management, Regulatory Interaction, Field Oversight	\$85.00	8	\$680.00
Associate Engineer (P1)	Field Oversight	\$85.00	9	\$765.00
Staff Engineer (SF)	Office Planning	\$70.00	4	\$280.00
Staff Engineer (SF)	Installation and Startup	\$70.00	20	\$1,400.00
Technician II (T2)	Office Preparation	\$45.00	2	\$90.00
Technician II (T2)	Installation and Startup	\$45.00	32	\$1,440.00
PI-7 Standard Exemption Form	Preparation and Submission	\$195.00	If Required	
FAR- System Installation	Preparation and Submission	\$2,300.00	1	\$2,300.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	
Section 2: Add Soil Vapor Extraction (SVE) System (3-well)				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Senior Engineer (P2)	Project Oversight	\$95.00	1	\$95.00
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	2	\$170.00
Associate Engineer (P1)	Field Oversight	\$85.00	2	\$170.00
Staff Engineer (SF)	Office Planning	\$70.00	2	\$140.00

Staff Engineer (SF)	Installation and Startup	\$70.00	8	\$560.00
Technician II (T2)	Office Preparation	\$45.00	2	\$90.00
Technician II (T2)	Installation and Startup	\$45.00	16	\$720.00
			Total, Section 2	\$1,945.00
Section 3: Add Off-gas Treatment System				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	2	\$170.00
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00
Staff Engineer (SF)	Installation and Startup	\$70.00	6	\$420.00
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00
Technician II (T2)	Installation and Startup	\$45.00	12	\$540.00
			Total, Section 3	\$1,245.00
Section 4: Add/Delete Wells (Any System) - Per Well				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	1	\$85.00
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00
Staff Engineer (SF)	Installation and Startup	\$70.00	4	\$280.00
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00
Technician II (T2)	Installation and Startup	\$45.00	8	\$360.00
			Subtotal, Section 4	\$840.00
			# of Wells to Add/Delete	
			Total, Section 4	
TOTAL, PART A2				
Part A3: Consultant Office and Field Costs, SVE System - See Note 1				
Section 1: Installation and Start-up of Basic 3-well System				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Senior Engineer (P2)	Project Oversight	\$95.00	3	\$285.00
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	8	\$680.00
Associate Engineer (P1)	Field Oversight	\$85.00	9	\$765.00
Staff Engineer (SF)	Office Planning	\$70.00	4	\$280.00
Staff Engineer (SF)	Installation and Startup	\$70.00	8	\$560.00
Technician II (T2)	Office Preparation	\$45.00	2	\$90.00
Technician II (T2)	Installation and Startup	\$45.00	20	\$900.00
PI-7 Standard Exemption Form	Preparation and Submission	\$195.00	If Required	
FAR- System Installation	Preparation and Submission	\$2,300.00	1	\$2,300.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00

				Total, Section 1	
Section 2: Add Off-gas Treatment System					
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL	
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	2	\$170.00	
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00	
Staff Engineer (SF)	Installation and Startup	\$70.00	6	\$420.00	
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00	
Technician II (T2)	Installation and Startup	\$45.00	12	\$540.00	
				Total, Section 2	\$1,245.00
Section 3: Add/Delete Wells - Per Well					
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL	
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	1	\$85.00	
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00	
Staff Engineer (SF)	Installation and Startup	\$70.00	4	\$280.00	
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00	
Technician II (T2)	Installation and Startup	\$45.00	8	\$360.00	
				Subtotal, Section 3	\$840.00
				# of Wells to Add/Delete	
				Total, Section 3	
TOTAL PART A3					

Part A4: Consultant Office and Field Costs, Dual Extraction System - See Note 1

Section 1: Installation and Start-up of Basic 3-well System					
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL	
Senior Engineer (P2)	Project Oversight	\$95.00	3	\$285.00	
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	8	\$680.00	
Associate Engineer (P1)	Field Oversight	\$85.00	13	\$1,105.00	
Staff Engineer (SF)	Office Planning	\$70.00	4	\$280.00	
Staff Engineer (SF)	Installation and Startup	\$70.00	24	\$1,680.00	
Technician II (T2)	Office Preparation	\$45.00	4	\$180.00	

Technician II (T2)	Installation and Startup	\$45.00	40	\$1,800.00	
PI-7 Standard Exemption Form	Preparation and Submission	\$195.00	If Required		

FAR- System Installation	Preparation and Submission	\$2,300.00	1	\$2,300.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	
Section 2: Add Off-gas Treatment System				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	2	\$170.00
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00
Staff Engineer (SF)	Installation and Startup	\$70.00	6	\$420.00
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00
Technician II (T2)	Installation and Startup	\$45.00	12	\$540.00
			Total, Section 2	\$1,245.00
Section 3: Add/Delete Wells - Per Well				
ITEM	ACTIVITY	UNIT COST	UNITS/HOURS	TOTAL
Associate Engineer (P1)	Management, Regulatory Interaction	\$85.00	1	\$85.00
Staff Engineer (SF)	Office Planning	\$70.00	1	\$70.00
Staff Engineer (SF)	Installation and Startup	\$70.00	4	\$280.00
Technician II (T2)	Office Preparation	\$45.00	1	\$45.00
Technician II (T2)	Installation and Startup	\$45.00	8	\$360.00
			Subtotal, Section 3	\$840.00
			# of Wells to Add/Delete	
			Total, Section 3	
TOTAL, PART A4				
Part B: Capital Equipment Costs - See Note 2				
ITEM	UNIT COST	UNITS	TOTAL	
Air Compressor				
Air Stripping Tower				
Catalytic Oxidizer				
Control Panel				
Oil/Water Separator				
Pneumatic Pump				
Electric Downhole Pumps				
Regenerative Blowers				
Holding Tanks				
Carbon Polishing Units				
(Other)				
(Other)				

(Other)			
		Subtotal, Part B	
		15% Mark-up	
		TOTAL, PART B	

Part C: Installation Costs - See Note 3

ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Trenching	Sawcut and excavate trench lines	15.00/LF		
Plumbing	Install Piping (Air, Water, Electric) in trenches	15.00/LF		
Resurface Excavations	Recover trench lines	\$6.00/LF		
Wellhead Modification	Install wellhead access boxes	At Cost		
Well Electrics	Install switches & drop tubes	\$200.00/Well		
Well Plumbing	Install air/water tubing & pumps	\$200.00/Well		
Concrete slab	Install slab for remediation system	\$5.50/SqFt		
Remediation compound fence	Install protective fence around system	\$850.00	1	\$850.00
Small Items		\$20.00/Site/Day		
Miscellaneous	Fittings, locks, etc.	\$100.00	1	\$100.00
(Other)				
(Other)				
(Other)				
		Subtotal, Part C		
		15% Mark-up		
		TOTAL, PART C		

Part D: Waste Management Costs- See Note 4

ITEM	UNIT COST	UNIT/HOURS	TOTAL
Load and Haul Excavated Soils and Concrete	\$14.00/CY		
Dispose Excavated Soils and Concrete	\$10.25/CY		
Vacuum Truck	\$75.00/HR		
Dispose Fluids	\$0.40/Gal		
Subchapter H Discharge or Alternative Disposal Method (Describe in Work Plan)	As Needed		
		Subtotal, Part D	
		10% Mark-up	
		TOTAL, PART D	

Part E: System Performance Analytical Costs- See Note 5

ITEM	UNIT COST	UNITS	TOTAL
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TPH (Water)	\$49.00		
BTEX (Water)	\$62.50		
BTEX (Air)	\$62.50		
BTEX w/ MTBE (Water)	\$85.00		
TOTAL LEAD (Water)	\$31.00		
Shipping	\$5.00/Sample		
(OTHER)			
(OTHER)			
		Subtotal, Part E	
		10% Mark-up	
TOTAL, PART E			

Part F: Travel Costs- See Note 6

ITEM	UNIT COST	UNITS/ HOURS	TOTAL
Equipment Truck	\$140.00/day		
Mileage (over 100 miles, round trip)	\$0.31/mile		
Travel Time	\$115.00/hour		
Per Diem	\$80.00/day/person		
Air Fare	By Need		
TOTAL, PART F			

TOTAL ACTIVITY COSTS, PARTS A1, A2, A3, or A4 and B-F

Notes:

- 1: Please refer to Appendix A, Part 1 for a breakdown of personnel costs.
- 2: Equipment purchased for the installation of a remediation system will be costed out by quote by the RCAS in the Interim Corrective Action Plan (ICAP) (see Activity 02), the Corrective Action Plan (CAP) (see Activity 08), or the workplan and cost proposal submitted for Remedial System Installation (see Activity 09). These quotes must be included when these documents are submitted to the TNRCC. Because of the unique nature of each individual site, and the range of equipment types available in the industry, the RCAS should design the remediation system with both efficiency and cost in mind. The cost proposals for remediation systems will be reviewed on a case-by-case basis.
- 3: Mark-up is allowed for subcontracted items only and rental or purchase receipts must accompany the application for reimbursement.
- 4: Please refer to Appendix A, Part 7 for a breakdown of waste management costs.
- 5: Please refer to Appendix A, Part 2 for additional laboratory analyses and costs. Mark-up is allowed only on subcontracted items.
- 6: Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs. Travel time for this section includes total costs for a two-man crew consisting of a Staff Engineer and a Technician II.

ACTIVITY 10: OPERATION, MONITORING, & PERFORMANCE

This subsection will be used at sites after the installation and successful start-up of the remediation system. Please note that this subsection allows both Groundwater Monitoring and Operation and Maintenance to be submitted as a single activity at sites with an operating remediation system. This subsection should also be used for the costs for a rented/leased remediation system or any rented/leased capital component(s) of the remediation system. If the rental/lease agreement contains costs for the maintenance of systems or components, duplicate costs for the maintenance of those systems/components are not reimbursable. Rental/lease agreements **must** be included with the workplan and cost proposal submitted for this Activity to be considered for preapproval. The timing of the annual OM&P cycle at a site will depend on the date of successful start-up of the remediation system installed in Activity 09.

Please note that some portions of the OM&P process may require the participation of a Registered Professional Engineer. Please refer to 30 TAC §334.308(g)(21) for information on when this participation is necessary.

WORKSHEET FOR OPERATION, MONITORING, AND PERFORMANCE

Part A: Personnel Costs - See Note 1

Section 1: Fixed Annual Office Costs

ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
OMP Plan for Existing Systems - See Note 2	Preparation and Submittal	\$500.00	1	
Principal Engineer (P3)	Oversight, Regulatory Interaction	\$110.00	4	\$440.00
Project Manager (PM)	Management, Planning, Data Review	\$80.00	12	\$960.00
OM&P Report	Preparation and Submission	\$1,295.00	1	\$1,295.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	

Section 2: Quarterly Monitoring Personnel Costs

Subsection 2A: First Quarter

ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Staff Engineer/Geologist (SF)	Field Prep, Data Formatting	\$70.00	1	\$70.00
Technician III (T3)	Purge and Sample Wells, First 25'	\$40.00/Well		
Technician III (T3)	Purge and Sample Wells, Each Additional 25' (Max 75')	\$10.00/Additional 25'/Well		
			Total, Subsection 2A	

Subsection 2B: Second Quarter

ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Staff Engineer/Geologist (SF)	Field Prep, Data Formatting	\$70.00	1	\$70.00
Technician III (T3)	Purge and Sample Wells, First 25'	\$40.00/Well		
Technician III (T3)	Purge and Sample Wells, Each Additional 25' (Max 75')	\$10.00/Additional 25'/Well		
			Total, Subsection 2B	
Subsection 2C: Third Quarter				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Staff Engineer/Geologist (SF)	Field Prep, Data Formatting	\$70.00	1	\$70.00
Technician III (T3)	Purge and Sample Wells, First 25'	\$40.00/Well		
Technician III (T3)	Purge and Sample Wells, Each Additional 25' (Max 75')	\$10.00/Additional 25'/Well		
			Total, Subsection 2C	
Subsection 2D: Fourth Quarter				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Staff Engineer/Geologist (SF)	Field Prep, Data Formatting	\$70.00	1	\$70.00
Technician III (T3)	Purge and Sample Wells, First 25'	\$40.00/Well		
Technician III (T3)	Purge and Sample Wells, Each Additional 25' (Max 75')	\$10.00/Additional 25'/Well		
			Total, Subsection 2D	
			Total, Section 2	
Section 3: Operation and Monitoring Personnel Costs for the Remediation System, Per Site Visit				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Technician III (T3)	O&M, 1st System, Up To 3 Wells	\$75.00	1	\$75.00
Technician III (T3)	O&M, Air Emissions Control	\$25.00 Each Device		
Technician III (T3)	O&M, Each Additional System, Up To 3 Wells	\$37.50		
Technician III (T3)	O&M, Each Additional Well Per System Over 3, All Systems	\$12.50/Well		
Staff Engineer (SF)	Field Prep, Data Formatting	\$70.00	.5	\$35.00
Staff Engineer (SF)	Field Prep, Data Formatting, Each Additional 3 System Wells	\$70.00	.5	\$35.00
			Subtotal, Section 3	
			Number of Site Visits	
			Total, Section 3	
TOTAL, PART A				
Part B: Equipment Costs- See Note 3				
ITEM	UNIT COST	UNITS	TOTAL	
System/Component Rental/Lease Costs - See Note 4				
Disposable bailers	\$8.00/Well			
Small items for Groundwater Monitoring	\$20.00/Event	4		\$80.00
Carbon Canisters, includes installation, recycling, and/or disposal	\$750.00			

Electrical Service		12	
Natural Gas Service		12	
Water/Wastewater Service		12	
Telecommunications (for off-site system monitoring)		12	
(Other)			
(Other)			
Small items for System Maintenance	\$50.00/Month/System	12	
		Subtotal, Part B1	
		10% or 15% Mark-up	
TOTAL, PART B			

Part C: Analytical Costs - See Note 3

Section 1: Groundwater Testing			
ANALYTICAL TEST	UNIT COST	UNITS	TOTAL
TPH/BTEX	\$111.50		
TPH/BTEX w/ MTBE	\$134.00		
TDS	\$15.00		
PAH (610)	\$158.00		
PAH (8270)	\$249.00		
Shipping	\$5.00/Sample		
(OTHER)			
		Subtotal, Section 1	
		10% Mark-up	
		Total, Section 1	
Section 2: System Performance Analytical Testing			
ANALYTICAL TEST	UNIT COST	UNITS	TOTAL
TPH (Water)	\$49.00		
BTEX (Water, Air)	\$62.50		
BTEX w/ MTBE (Water)	\$85.00		
TOTAL LEAD (Water)	\$31.00		
Shipping	\$5.00/Sample		
(OTHER)			
(OTHER)			
		Subtotal, Section 2	
		10% Mark-up	
		Total, Section 2	
TOTAL, PART C			

Part D: Waste Management Costs - See Note 5			
ITEM	UNIT COST	UNITS	TOTAL
Vacuum Truck	\$75.00/Hour		
Fluid Disposal	\$0.40/Gallon		
Subchapter H Discharge or Alternate Disposal Method (Describe in Work Plan.)	As Needed		
		Subtotal	
		10% Mark-up	
TOTAL, PART D			

Part E: Travel Costs - See Note 6			
ITEM	UNIT COST	UNITS/ HOURS	TOTAL
Equipment Truck	\$140.00/day		
Mileage (over 100 miles, round trip)	\$0.31/mile		
Travel Time	\$50.00/hour		
Per Diem	\$80.00/day		
Air Fare	By Need		
TOTAL, PART E			

TOTAL ACTIVITY COSTS, PARTS A-E			
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Notes:

- 1: Please refer to Appendix A, Part 1 for a breakdown of personnel costs.
- 2: An OMP Plan for existing systems should be submitted for any site where a remediation system was in operation at the time the system performance reporting requirements were adopted by the TNRCC.
- 3: Please refer to Appendix A, Part 5 for a listing of equipment costs. Mark-up for subcontracted costs vary. Refer to Appendix A: Part 9.
- 4: This line will be used if a remediation system or a component(s) of the remediation will be reimbursed in this Activity. See Activity 09: Remediation System Installation
- 5: Please refer to Appendix A, Part 2 for additional laboratory analyses and costs. Mark-up is allowed only on subcontracted items.
- 6: Please refer to Appendix A, Part 7 for a breakdown of waste management costs.
- 7: Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs. The TNRCC will pay for one Technician to travel to the site and perform O&M and Groundwater Sampling events. The TNRCC will reimburse this individual at the T3 rate when O&M is performed and at the T1 rate when sampling is performed. Travel will be paid at the T3 rate.

ACTIVITY 11: SITE CLOSURE

This subsection will be used after a Site Closure Request has been reviewed and approved by the TNRCC.

WORKSHEET FOR SITE CLOSURE				
Part A: Personnel Costs - See Note 1				
Section 1: Office Costs				
ITEM	ACTIVITY	UNIT COST	HOURS/UNITS	TOTAL
Site Closure Request	Preparation and Submission	\$275.00	1	\$275.00
Project Manager (PM)	Management and Oversight	\$80.00	2	\$160.00
Final Closure Report	Preparation and Submission	\$195.00	1	\$195.00
Workplan and Cost Proposal	Preparation and Submission	\$115.00	1	\$115.00
			Total, Section 1	\$745.00
Section 2: Field Personnel Costs				
ITEM	ACTIVITY	UNIT COST	HOURS/ UNITS	TOTAL
Technician II (T2)	Plug First Well	\$135.00	1	\$135.00
Technician II (T2)	Plug Additional Well, <100' Deep	\$90.00		
Technician II (T2)	Plug Additional Well, >100' Deep	\$135.00		
Remediation System Removal- See Note 2	Remove and dispose of system capital components	\$500.00		
			Total, Section 2	
TOTAL, PART A				
Part B: Rig Costs - See Note 3				
ITEM	ACTIVITY	UNIT COST	UNITS	TOTAL
Mobilization (less than 50 miles)	Transport Rig & Crew to Site	\$245.00	1	\$245.00
Mileage (over 50, max 450)	Additional Mileage to Site, Round Trip	\$2.50		
Plug & Abandon Wells	P&A first 25', per well	\$300.00		
Plug and Abandon Wells	P&A additional footage, 26' to 100', per foot per well	\$8.00		
Plug and Abandon Wells	P&A additional footage, >100', per foot per well	\$10.00		
Drill Crew Per Diem	Overnight Stay	\$190.00		
			Subtotal, Part B	
			15% Mark-up	
TOTAL, PART B				

Part C: Other Costs - See Note 3			
ITEM	UNIT COST	UNITS	TOTAL
Disposal of Waste Material	\$250.00 + \$10.50/CY		
Small Items	\$20.00/Site/Day		
(Other)			
(Other)			
(Other)			
		Subtotal, Part C	
		15% Mark-up	
TOTAL, PART C			

Part D: Travel Costs - See Note 4			
ITEM	UNIT COST	UNITS/HOURS	TOTAL
Equipment Truck	\$140.00/Day		
Mileage (over 100, Round Trip)	\$0.31		
Travel Time	\$45.00		
Per Diem	\$80.00		
Airfare	By Need	1	
TOTAL, PART D			

TOTAL ACTIVITY COSTS, PARTS A-D		
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Notes:

1: Please refer to Appendix A, Part 1 for a breakdown of personnel costs.

2: Capital equipment consists of the major individual components of the remediation system including pumps, compressors, aeration trays, stripping towers, oil/water separators, catox units, etc. It does not include wiring, tubing, piping, etc. Every effort should be made to reuse functional components of a remediation system at other sites to control costs.

3: Mark-up is allowed for subcontracted costs only. Costs for plugging and abandoning wells includes resurfacing the well points. Waste material includes well casing, concrete, surface completions, compound fencing, etc.

4: Please refer to Appendix A, Part 4 for a breakdown of travel policy and costs.

APPENDIX A
REIMBURSABLE UNIT COSTS

PART 1: PROFESSIONAL PERSONNEL/LABOR RATES

PERSONNEL TITLE	MAXIMUM RATE/HOUR
Principal (PR)	\$110.00
Principal Engineer/Geologist/Hydrogeologist III (P3)	\$110.00
Senior Engineer/Geologist/Hydrogeologist II (P2)	\$95.00
Associate Engineer/Geologist/Hydrogeologist I (P1)	\$85.00
Project Manager (PM)	\$80.00
Staff Engineer/Geologist/Hydrogeologist (SF)	\$70.00
Field Engineer/Geologist/Hydrogeologist (FD)	\$65.00
Environmental Scientist (ES)	\$70.00
Health Scientist (HS)	\$80.00
Technician III (T3)	\$50.00
Technician II (T2)	\$45.00
Technician I (T1)	\$40.00
Draftsperson II (D2)	\$50.00
Draftsperson I (D1)	\$45.00
Word Processor (WP)	\$35.00
Clerical (CL)	\$30.00

Notes:

1: The Personnel Titles in this table correspond with the Personnel Qualifications and Task Descriptions in the table immediately following.

2: Personnel Costs for office staff includes the cost of the equipment they normally use to complete their tasks. Separate costs for computers (including CADD machines), office supplies, etc. are not reimbursable.

3: Reimbursement is based on the maximum rate of the corrective action task being performed, not the rate of the individual performing the task. For instance, an individual at the level of a Technician I (T1) or higher is required to perform normal monitoring well sampling activities, but there is no injunction against a Senior Engineer (P2) performing this task. The maximum reimbursable rate for this task, regardless of who is actually performing the work, however, is at the rate of a T1, which is \$40.00/ hour. (In other words, any individual with minimum qualifications *or higher* may perform a given corrective action task, but reimbursement will be based on the hourly or unit rate for the task, not the pay rate of the individual performing it.)

4: Mark-up for professional personnel employed by the RCAS is not allowed. If the RCAS does not have an individual with the qualifications necessary to perform a task the RCAS may subcontract out for this service. Reimbursable costs for these individuals will be cost plus 10%.

PERSONNEL QUALIFICATIONS AND TASK DESCRIPTIONS

The following qualifications and task descriptions are for those personnel who will be involved in activities for which preapproval is required.

PERSONNEL AND QUALIFICATIONS	TASK DESCRIPTION
<p>Principal (PR) Administrative and/or professional head of the organization. Responsible for conceiving and executing plans and functions of the organization. Directs the professional staff. Normally has a financial interest in the company as partial owner, major investor, or major stockholder. Charges an extremely limited number of hours per site as the Principal. This position should never bill field hours.</p>	<ul style="list-style-type: none"> - Expert testimony - Legal strategies - Depositions - Organizational oversight
<p>Principal Engineer/Geologist/Hydrogeologist III (P3) A Principal must be professionally registered when applicable, be in compliance with Subchapter J rules, have an advanced engineering or science degree, and at least ten years experience in conducting corrective action. Administrative and/or professional head of an organization with authority and responsibility for conceiving and executing plans and functions of the organization and directing a professional staff. Charges a very limited number of hours per site, as in review of the project documents. A Principal should almost never bill field work.</p>	<ul style="list-style-type: none"> - Expert testimony - Program management - Project oversight - Depositions - Reviews most complex sites - Develops or advances new technology innovations
<p>Senior Engineer/Geologist/Hydrogeologist II (P2) Typically requires an advanced degree. Requires professional registration when applicable, 8 years of experience in technical or managerial roles, and compliance with Subchapter J. Serves as senior technical leader for environmental remediation projects of medium to large scope and/or complexity and has developed substantial expertise in the field of practice. May supervise or direct the work activities of lower level professionals and technicians. Will perform very limited field work, and have limited involvement in projects. Duties typically include reviewing reports, developing strategies, and attending client and/or Agency meetings. Responsible for approving designs, reports, plans, and specifications before submittal to clients or regulatory agencies. If significantly involved in a highly technical project, should have substantial technical expertise directly related to the project.</p>	<ul style="list-style-type: none"> - Program management - Project oversight - Project management - Aquifer characterization - Reviews technical reports - Reviews RAPs - Data review and analysis - Prepares proposals
<p>Associate Engineer/Geologist/Hydrogeologist I (P1) Typically requires a Bachelor's degree in engineering, geology, hydrogeology, or related science and professional registration when applicable. Complies with Subchapter J, and has 5 to 7 years of experience or an advanced degree and more than 4 years of experience. Leads and supervises teams of lower level personnel, but would have a limited number of hours charged to each site, and only a small percentage of total field hours. Generally supervises Project Managers and oversees several projects. May prepare proposals. Under general direction, prepares environmental programs and plans specifications for site remediation activity.</p>	<ul style="list-style-type: none"> - Project management - Engineering/remedial equipment design - Aquifer characterization - Review technical reports - Review remedial action plans - Data review & analysis - Report preparation - Prepare proposals - Site inspection (occasional)
<p>Project Manager (PM) Typically possesses a bachelor of science degree in engineering, geology, hydrogeology, or a directly related field. Serves as manager for entire projects. Complies with Subchapter J and has at least three years of experience in the environmental field. Under general supervision, prepares environmental programs and plans specifications for site remedial activities. Is responsible for gathering field data and is competent at data analysis. Serves as on-site technical expert and may do hydrological site characterizations, supervise hydraulic tests, and write sections of reports.</p>	<ul style="list-style-type: none"> - Project management - Data review and analysis - Report preparation - Report review - Engineering/equipment design - On-site supervision - Workplan preparation - Site assessment planning - Field work planning - Site inspection (periodic) - Obtains permission for off-site access
<p>Staff Engineer/Geologist/Hydrogeologist (SF) Requires a bachelor's degree in engineering, geology, hydrogeology, or related science and one to three years of experience in the environmental field. Works under supervision to perform routine tasks related to environmental remediation system design and aquifer testing. Must be able to conduct assessment and remedial activities including drilling and monitoring well installation, sampling, and compiling data. Must have knowledge of QA/QC procedures and protocol. This position will normally be highest in the number of hours billed to field work.</p>	<ul style="list-style-type: none"> - Report preparation - Field work preparation/planning - Supervises site assessment activities and overexcavation - Site reconnaissance and mapping - Remedial system installation - Limited data review and analysis - Obtains permission for off-site access - Monitoring activities
<p>Environmental Scientist (ES) Typically requires a degree in biology, chemistry, microbiology, or related environmental science degree and 2-6 years of related experience. An individual with an advanced degree should have 2 years of related experience. Performs assignments related to site assessments and bioremediation projects, risk analysis methodologies, and analytical data reduction.</p>	<ul style="list-style-type: none"> - Data review and analysis - Bioremediation feasibility studies - Report preparation and overview - Report review - Onsite supervision - Site assessment planning
<p>Health Scientist (HS) Typically requires a degree in Industrial Hygiene, Toxicology, or a related health science degree, and requires 1-3 years of related experience. Ensures compliance with of field service operations with OSHA safety standards. Addresses public health concerns.</p>	<ul style="list-style-type: none"> - Health and safety coordinator - Develops site safety plan - Periodically oversees health and safety monitoring
<p>Field Engineer/Geologist/Hydrogeologist (FD) Entry level position requiring a degree in engineering, geology, hydrogeology, or related science and less than a year of experience. Under close supervision, performs routine field tasks related to environmental projects including drilling and monitoring well installation, sampling, site layout and geologic mapping, writing field notes, and basic analysis.</p>	<ul style="list-style-type: none"> - Field work preparation - Assist in site assessment activities - Site reconnaissance & mapping - Remedial system installation - Limited data review and analysis - Monitoring and sampling - Supervise overexcavation

<p>Technician III (T3) Typically requires a high school diploma, certified or licensed trades-person, or an Associates degree. Requires more than 4 years of experience in the environmental field. Responsible for general supervision of the installation, maintenance, and repair of on-site equipment. Collects samples and maintains operating logs.</p>	<ul style="list-style-type: none"> - Field work preparation - Operation & maintenance of equipment - Well development & sampling - Soil Sampling - Waste handling - Remedial system installation - Limited contractor supervision - Free product (PSH) removal - Monitoring
<p>Technician II (T2) Typically requires a high school diploma. Requires 2 to 4 years of on-the-job training. Under appropriate supervision, performs routine labor tasks associated with on-site installation, maintenance, and repair of remediation equipment. Bails wells and collects soil and groundwater samples.</p>	<ul style="list-style-type: none"> - Field work preparation - Operation & maintenance of equipment - Well development & sampling - Soil Sampling - Waste handling - PSH removal - Monitoring
<p>Technician I (T1) Typically requires a high school diploma. Entry level position, under close supervision. Performs routine labor associated with system installation, maintenance and repair of machinery, monitoring, and sampling.</p>	<ul style="list-style-type: none"> - Operation and maintenance of equipment - Well development and sampling - Soil sampling - PSH removal - Monitoring
<p>Draftsperson II (D2) Typically requires a high school diploma. Requires 4 to 8 years of experience or two years of related college and more than one year of experience. Generally requires a Technical Drawing Certificate, and advanced drafting skills such as Computer Aided Drafting (& Design) operations.</p>	<ul style="list-style-type: none"> - Advanced drafting - CAD/CADD work - Cartography
<p>Draftsperson I (D1) Typically requires a high school diploma with up to 4 years of experience. Generally requires a Technical Drawing Certificate and some familiarity with Computer Aided Drafting. Performs entry to mid-level drafting such as minor edits to existing CAD or board drawings.</p>	<ul style="list-style-type: none"> - Mid-level drafting - CAD editing
<p>Word Processor (WP) Operates computer for word processing, spreadsheets, and statistical typing, correspondence report generation, etc. Higher billing rates imply experienced, efficient work.</p>	<ul style="list-style-type: none"> - Spreadsheets - Report generation - Word processing
<p>Clerical (CL) General office work, typing, and filing.</p>	<ul style="list-style-type: none"> - Typing - Filing - General secretarial - Document reproduction

PART 2: LABORATORY ANALYSIS COSTS

Test/Method	Standard Rate	Rush Rate		Test/Method	Standard Rate	Rush Rate
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TPH- EPA 418.1				8 RCRA Metals- EPA 1131		
Soil	\$47.50	\$71.25		Soil	\$150.00	n/a
Water	\$49.00	\$73.50		Total Organic Halogens- TOX		
Air	\$47.50	\$71.25		EPA 9020		
BTEX- EPA 8021B				Soil	\$98.00	\$147.00
Soil	\$62.50	\$93.75		Volatile Organic Compounds- VOCs		
Water	\$62.50	\$93.75		EPA 8260B		
Air	\$62.50	\$93.75		Soil	\$220.00	\$330.00
BTEX w/ MTBE- EPA 8021B				Water	\$220.00	\$330.00
Soil	\$80.00	\$120.00		Semi-V.O.C.s- EPA 8270		
Water	\$85.00	\$127.50		Soil	\$295.00	\$570.00
PAH				Water	\$295.00	\$570.00
Soil - EPA 8100	\$148.00	\$222.00		TCLP Benzene- EPA 1311 w/ 8020		
Water - EPA 610	\$158.00	\$237.00		Soil	\$152.00	n/a
PAH				Total Lead- EPA 7420		
Soil - EPA 8270	\$222.00	\$333.00		Soil	\$31.00	\$46.50
Water - EPA 625/8270	\$249.00	\$373.50		Water	\$31.00	\$46.50
Total Dissolved Solids- EPA 160.1				TCLP Lead- EPA 1311 w/ 7420		
Water	\$15.00	\$22.50		Soil	\$93.00	n/a
Soil Parameters- (see Note 2)	\$300.00	n/a		Reactivity, Corrosivity, Ignitability (RCI)		
Total Organic Carbon				Soil	\$35.00	n/a
Soil - SW 9060	\$40.00	\$60.00		Iron (Fe) - EPA 200.7		
Water - EPA 415.1/9060	\$32.00	\$48.00		Water	\$10.00	\$15.00
Chlorides- EPA 325.3				Nitrates- EPA 353.2		
Soil/Water	\$18.00	\$27.00		Water	\$24.00	\$36.00
Moisture- ASTM D-2216				Phosphates- EPA 365.2		
Soil	\$12.00	\$18.00		Water	\$24.00	\$36.00
Sulfates- EPA 375.4				Mobile Laboratory	\$1650.00/day	
Water	\$24.00	\$36.00				

Notes:

- 1: The above prices include all charges associated with lab analysis including but not limited to preparation and disposal.
- 2: Includes Total Organic Carbon, Porosity, Intrinsic Permeability, Bulk Density, and Volumetric Water Content.
- 3: Justification for anything other than the Standard Rate should be included in the work plan and/ or the reimbursement application. The Standard Rate is for a turnaround time greater than 48 hours. Rush Rate is for a turnaround time of less than 48 hours. If an analytical test cannot be completed in less than 48 hours, Rush Rate will not be allowed.
- 4: Allowable shipping costs are \$5.00 per sample container (or sample set in the case of BTEX/V.O.C. samples), regardless of the method of delivery. Labor for the collection of samples is included in site personnel costs.
- 5: A mobile laboratory is expected to conduct 18-20 TPH/BTEX analyses on soils each day or 15-18 TPH/BTEX water/soil analyses each day. For sites where a small number of samples will need to be analyzed, the TNRCC may allow 1/2 of one day of use for the mobile laboratory (at \$825.00) if this is the most cost-effective option. Mob/Demob costs for a mobile lab are \$145.00 for the first 50 miles (or less) plus \$1.90/mile for each additional mile up to a total of 450 additional miles.
- 6: Method 8021B replaces Method 8020. Method 8260B replaces Method 8240.

PART 3: DRILLING, WELL INSTALLATION, AND DIRECT PUSH TECHNOLOGY COSTS

The following costs are for various drilling activities. Please note that the costs are set up so that any boring or monitoring well that is twenty-five deep **or less** will be reimbursed at a lump sum rate. Costs after the first twenty-five feet should be calculated on a per-foot (beyond twenty-five feet) basis. Boring costs include decon, coring, plugging, and Water Well Report generation costs. Monitoring well installation costs include drilling, decon, coring, all well materials, surface completion, cap, lock, and Water Well Report Generation.

SECTION A: CONVENTIONAL DRILLING - See Notes

Sand/Silt/Clay with Hollow-Stem Augers and Continuous Sampling

Depth Interval	Boring	2" Well	4" Well	6" Well
	Lump Sum	Lump Sum	Lump Sum	Lump Sum
0' to 25'	\$775.00	\$1,025.00	\$1,187.50	\$1,925.00
	Per Additional Foot	Per Additional Foot	Per Additional Foot	Per Additional Foot
26' to 50'	\$25.00	\$43.50	\$54.00	\$76.00
51' to 100'	\$43.00	\$51.50	\$61.50	\$76.00
> 100'	\$61.50	\$54.00	\$80.00	\$88.00

Limestone/Hard Rock using Air or Mud Rotary, Surface Sampling Only

Depth Interval	Boring	2" Well	4" Well	6" Well
	Lump Sum	Lump Sum	Lump Sum	Lump Sum
0' to 25'	\$1,025.00	\$1,275.00	\$1,450.00	\$1,950.00
	Per Additional Foot	Per Additional Foot	Per Additional Foot	Per Additional Foot
26' to 50'	\$42.00	\$46.00	\$59.00	\$78.00
51' to 100'	\$48.00	\$53.00	\$62.00	\$79.00
> 100'	\$61.00	\$63.00	\$70.00	\$89.00

Limestone/Hard Rock using Air Coring and Continuous Sampling

Depth Interval	Boring	2" Well	4" Well	6" Well
	Lump Sum	Lump Sum	Lump Sum	Lump Sum
0' to 25'	\$1,078.00	\$1,562.50	\$1,825.00	\$2,075.00
	Per Additional Foot	Per Additional Foot	Per Additional Foot	Per Additional Foot
26' to 50'	\$38.50	\$57.50	\$72.00	\$87.50
51' to 100'	\$44.00	\$65.00	\$79.00	\$96.00
> 100'	\$53.00	\$76.00	\$92.00	\$118.00

Completion Footage Rates Expected in a Standard (10-Hour) Work Day

	Borings	Monitoring Wells
Sand/Silt/Clay using HSAs, Continuous Sampling	143	111
Limestone/Hard Rock w/ Air/Mud Rotary, Surface Sampling	215	117
Limestone/Hard Rock w/ Air Coring, Continuous Sampling	150	115

Mobilization/Demobilization and Per Diem

Mob/Demob <50 Miles	\$245.00 Lump Sum
Mob/Demob >50 Miles	\$2.50/Mile > 50 Miles one-way (max 450 additional miles)
Drill Crew (3 Person) Per Diem	\$190.00

SECTION B: DIRECT PUSH TECHNOLOGY

Day Rate for a Direct Push Unit	\$1480/Day - See Note 4
Per Foot Charge	\$12.50/Foot
Expected Footage per Standard (10-hour) Day	195 Feet/Day
Additional amount/foot for 1" well completion	\$12.50

Mobilization/Demobilization and Per Diem

Mob/Demob <50 Miles	\$145.00 Lump Sum
Mob/Demob >50 Miles	\$1.90/Mile > 50 Miles one-way (max 450 additional miles)
Drill Crew (2 Person) Per Diem	\$130.00

Notes:

1: At some sites, the need may arise for the installation of a well that isolates an upper saturated zone in order to define the contaminant plume in a lower saturated zone. When the need for such a dual-cased well is agreed upon between the owner/operator and the TNRCC, the workplan and cost proposal submitted to the TNRCC for preapproval should contain three bids for the installation of these wells. Submitted costs will be reviewed on a case-by-case basis.

2: In situations where a low total footage of borings are to be installed or a second day of utilization of direct push technology is required, the per foot charge will be used, not to exceed the day rate.

3: Per Diem requirements for drill crews is described in the "Travel" section of this Appendix.

4: For sites where the footage of direct of direct push borings needing to be installed is small, the TNRCC may allow ½ of one day for Direct Push Unit rental (at \$740.00/day), plus \$12.50 per foot after the first 98 feet have been installed.

PART 4: TRAVEL COSTS

Travel By Air vs. Travel by Surface Vehicle

The TNRCC will reimburse for 500 miles round-trip mileage plus 10 hours of travel time **or** round-trip coach airfare plus 1½ hours of travel time per site visit, whichever is smaller. Personnel rates allowed for travel time will be determined by the field personnel required to complete the activity as described in the cost guidelines for each activity. The number of personnel allowed for travel will also be determined by the number of field personnel in the cost guidelines.

Travel costs will only be paid from the closest office of the RCAS to the site. Mileage rates will be tied to the applicable Internal Revenue Service rate for mileage, rounded to the next highest cent. As of November 1, 1996, that rate is 31 cents per mile.

To simplify the preapproval process, a flat rate of \$140.00 per day will be allowed for the use of an "equipment truck". This can be any vehicle, of any size, either company owned or rented. This vehicle comes with all of the equipment normally used by the operator for field work, and may include purging and sampling gear (including pumps and generators), coolers, environmental monitoring devices, and tools. The only equipment not included in the day rate for this truck are disposables such as PPE, bailers, visqueen, ice, cameras, film, etc. These disposables are costed out on a per well, per cubic yard, or per day basis, as appropriate to the specific activity. Included in the \$140.00 cost of the equipment truck is the first 100 miles of travel. If a vehicle is going to be utilized to conduct work on more than one site on a given day, the operator **must** split travel time between the sites, or lump all travel costs on a single site.

Per Diem and Non-reimbursable Costs

Per diem (meals and lodging) will be paid for site activities requiring more than one day of field work **and** occurring at a site greater than 90 miles (one way) from the closest office of the RCAS. The per diem will be a maximum of \$80.00 or actual cost, whichever is lower, per individual required for the activity. All receipts for lodging and food must be submitted with the reimbursement application for per diem to be reimbursed. Per diem for drill crews will be \$190.00 for a standard three-person crew (rotary rig) or \$130.00 for a two-person direct push crew. Lodging receipts must be submitted with the drilling invoice(s) for drill crew per diem to be reimbursed. Other travel costs for drill rigs and crews are discussed in the "Drilling and Well Installation" unit costs in this Appendix.

The following travel expenses are not reimbursable:

- Personal trips;
- Overtime;
- Entertainment; and
- Travel for any purpose not directly related to the performance of necessary corrective action.

PART 5: EQUIPMENT AND SUPPLY COSTS

The following tables contain maximum reimbursable costs for a variety of large and small equipment, along with commonly used supplies. The total reimbursable cost for leased/rented equipment will not exceed the normal retail price for that piece of equipment, plus mark-up.

Equipment (Small)	Daily	Weekly	Monthly	Purchase
Absorbent Booms				
4" X 36"- each				\$5.00
6" X 10'- each				\$30.00
8" X 10'- each				\$40.00
Aeration Trays- See Note 1			\$100.00	\$2,400.00
Air Compressors & Generators				
AC- 3/4 Horsepower	\$15.00	\$70.00	\$200.00	
AC- 2 Horsepower	\$20.00	\$75.00	\$250.00	
AC- 5 Horsepower	\$25.00	\$100.00	\$300.00	\$7,200.00
AC- 150 CFM & Paving Breaker (Jackhammer)	\$85.00	\$325.00	\$950.00	
GEN- 400 Watt	\$50.00			
GEN- 3500 Watt	\$75.00			
Air Strippers- See Note 1				\$15,250.00
Bailers				
Bailer (Teflon or polypropylene, disposable)				\$8.00
Bailer (PVC, dedicated)				\$15.00
Carbon Absorbers, Drum Type- See Note 1. (Includes installation, recycling, and/or disposal.)				\$750.00
Data Collectors				
Datalogger (2 channel)	\$65.00	\$325.00		
Datalogger (8 channel)	\$115.00	\$575.00		
Pressure Transducer	\$35.00	\$175.00		
OVN Meter (PID, FID) - See Note 2				
Combustible Gas Meter- See Note 2				
pH, Conductivity, Temperature Meter- See Note 2				
Dissolved Oxygen Meter- See Note 2				
Oxygen, Carbon Dioxide, Methane Gas Meter- See Note 2				
Interface Probe- See Note 2				
Field Test Kits and/or Meters for Water Alkalinity, Redox, Chloride, Iron, Nitrate, Sulfate, Phosphate- See Note 2				
Concrete				\$55.00/cy

	Concrete Saw	\$50.00	\$75.00		
	Fences				
	Compound Fence (Wood/Chain)				\$850.00
	Chain Link, \$/Foot			\$3.50	\$9.00
	Temporary Construction Barrier, \$/100 Feet		\$1.00	\$8.00	\$100.00
	Hand Augers				
	Manual	\$15.00	\$60.00		
	Power	\$45.00	\$180.00		
	Jackhammer(electric)	\$40.00	\$150.00	\$500.00	
	Oil/Water Separator, Gravity Type- See Note 1				\$2,000.00
	Pumps				
	Gas Powered, 2" Diameter, 150 GPM	\$50.00	\$200.00		
	Pneumatic	\$75.00	\$225.00		\$2,000.00
	2", Electric Submersible, 10 GPM	\$45.00	\$180.00		See Note 1
	4", Electric Submersible, 20 GPM	\$50.00	\$200.00		See Note 1
	Skimmers				
	Passive (1 Liter)		\$10.00	\$30.00	\$350.00
	Electric		\$75.00	\$265.00	\$3,200.00
	Holding Tanks- See Note 1				
	55 Gallon Barrel or Drum				\$40.00
	1,000 Gallon	\$25.00	\$75.00	\$225.00	\$700.00
	5,000 Gallon	\$35.00	\$105.00	\$315.00	\$3,750.00
	21,000 Gallon	\$100.00	\$300.00	\$900.00	
	Stripping Towers- See Note 1				\$14,750.00
	SVE Pilot Test Equipment				
	Blower, 1.5 Horsepower	\$20.00			
	Blower, 5 Horsepower	\$35.00			
	Blower, 15 Horsepower	\$50.00			
	Pressure Gauges	\$75.00			
	Carbon Canister (drum type)	\$45.00			\$500.00
	SVE Probe	\$250.00			
	An SVE Trailer w/ all necessary equipment	\$500.00			
	Survey Equipment	\$30.00	\$120.00		
	Traffic Control Components				
	Barricades	\$1.00	\$4.00	\$14.00	\$85.00
	Cones/Delineators (per 25)	\$5.00	\$20.00	\$50.00	\$115.00

Signs		\$1.00	\$3.00	\$11.00	\$35.00
Well Materials- See Note 3					
2" PVC Casing, Schedule 40, Per Foot					\$2.00
2" PVC Screen, Schedule 40, Per Foot					\$4.00
2" PVC Threaded Cap					\$5.00
4" PVC Casing, Schedule 40, Per Foot					\$4.00
4" PVC Screen, Schedule 40, Per Foot					\$8.00
4' PVC Threaded Cap					\$9.00
Filter Sand, 100 Lb. Bag					\$5.00
Concrete, Ready Mix, 90 Lb. Bag					\$3.50
Concrete, Portland Cement, 90 Lb. Bag					\$7.50
Sand Cement Slurry Backfill w/ Delivery, Per cy					\$40.00
Bentonite Grout, 50 Lb. Bag					\$23.00
Bentonite Chips, 50 Lb. Bag					\$7.50
Bentonite Tablets, 50 Lb. Bag or Bucket					\$31.00
Miscellaneous					
Small Items- See Note 4		\$20.00			
Tedlar Bags					\$7.50
Visqueen, 6 mil, 20' X 100'					\$60.00
Equipment (Large)			Hourly	Daily	Weekly
Backhoes (operated)- See Note 5					
Light-duty (12'-18' digging depth) (\$35/hr rental & \$40/hr operator)			\$75.00	\$495.00	\$2,125.00
Medium-duty (15'-20' digging depth) (\$50/hr rental & \$40/hr operator)			\$90.00	\$570.00	\$2,300.00
Heavy-duty (17'-21' digging depth) (\$70/hr rental & \$40/hr operator)			\$110.00	\$670.00	\$2,650.00
Compactors (operated)					
Walk-behind (\$20/hr rental & \$30/hr operator)			\$50.00	\$340.00	\$1,500.00
Riding (\$25/hr rental & \$30/hr operator)			\$55.00	\$365.00	\$1,575.00
Loaders (operated)					
Bobcat (\$20/hr rental & \$40/hr operator)			\$60.00	\$420.00	\$1,900.00
Light-duty (up to 100 hp) (\$30/hr rental & \$40/hr operator)			\$70.00	\$470.00	\$2,050.00
Heavy-duty (greater than 100 hp) (\$50/hr rental & \$40/hr operator)			\$90.00	\$570.00	\$2,350.00
Tracked Excavators (operated)					
Light-duty (20'-22' digging depth) (\$85/hr rental & \$40/hr operator)			\$125.00	\$745.00	\$2,875.00
Medium-duty (24'-26' digging depth) (\$100/hr rental & \$40/hr operator)			\$140.00	\$820.00	\$3,100.00
Heavy-duty (>26' digging depth) (\$120/hr rental & \$40/hr operator)			\$160.00	\$920.00	\$3,400.00
Trucks					

Equipment Truck - See Note 6		\$140.00	
10 cy Dump (operated)	\$50.00	Bill time actually used.	
14 cy Dump (operated)	\$55.00		
20 cy Dump w/ trailer (operated)	\$60.00		
Vacuum Truck (operated)	\$65.00		

Notes:

1: Equipment purchased for the installation of a remediation system will be costed out by quote by the RCAS in the Interim Corrective Action Plan (ICAP) (see Activity 02), the Corrective Action Plan (CAP) (see Activity 08), or the workplan and cost proposal submitted for Remedial System Installation (see Activity 09). These quotes must be included when these documents are submitted to the TNRCC. Because of the unique nature of each individual site, and the range of equipment types available in the industry, the RCAS should design the remediation system with both efficiency and cost in mind. The cost proposals for remediation systems will be reviewed on a case-by-case basis.

2: The majority of data collection devices are consultant-owned and will be included in the cost of the Consultant's Equipment Truck, which is reimbursed at the rate of \$140.00 per day, plus mileage over 100 miles round trip. Please refer to the "Travel" section in this Appendix.

3: Well materials are included for reference. The reimbursement of the cost of installing monitoring wells is done on a per-foot basis, in which the cost of well materials is included. Please refer to the "Drilling and Direct Push Technology" section in this Appendix.

4: Small items are those disposables normally used at an LPST site. They would include string, gloves, decon supplies, and distilled water. Other small items may include tape, pens, paint, ice, and warning tape.

5: Costs for heavy equipment are based on a rental charge of five hours per day and fifteen hours per week, and an operator charge of eight hours per day and forty hours per week.

6: See Appendix A, Part 4: Travel Costs for a description of the Equipment Truck and its use.

PART 6: EXCAVATION, BACKFILLING, AND RESURFACING COSTS

The following tables should be used to calculate all excavation and over-excavation costs, along with the replacement of excavated soils with imported fill, compacting that fill, and resurfacing areas affected by these activities. Please note that all personnel costs, except for stockpile sampling and report generation, have been built into these flat rates. Also note that the disposal of impacted soils discovered during a tank removal must be preapproved independent of tank removal activities.

ITEM	2" ASPHALT	6" CONCRETE	PER CUBIC YARD
Remove Pavement Over Affected Area, per sq ft	2.50	4.00	
Excavate Impacted Soils, per cy			9.00
Import Fill, per cy			11.00
Compact Fill, per cy			9.00
Resurface Affected Area, per sq ft	3.50	5.50	

Notes:

- 1:** If concrete cover is greater than 6", please note this fact on the workplan and cost proposal. A TNRCC coordinator has the ability to adjust reimbursable costs for site-specific circumstances.
- 2:** Imported fill volume will be calculated at the rate of 1.3 times the *in situ* volume of the excavated soils.
- 3:** Compaction costs include in-place density tests.
- 4:** On rare occasions, shoring may be necessary to conduct excavation activities. If you encounter such a situation, justification for increased cost must be submitted with the workplan and cost proposal.

PART 7: SOILS AND WASTEWATER MANAGEMENT COSTS

This section should be used to determine the cost of loading, hauling, and disposing excavated soils or generated groundwater.

DISPOSAL RESULTING FROM ANY SITE ACTIVITY			
MEDIA	METHOD		
ALL SOILS	LOAD AND HAUL	DISPOSE IN LANDFILL	
	\$14.00/CY	>1500 PPM TPH: \$45.00/CY; <1500 PPM TPH: \$10.50/CY; See Note 1	
>1500 PPM TPH SOILS ONLY	ASPHALT RECYCLING	THERMAL DESORPTION	BIOREMEDIATION
	\$35.00/CY; See Note 2	\$45.00/CY; See Note 2	\$35.00/CY; See Note 2
GROUNDWATER AND PSH	LOAD, HAUL, & DISPOSE		ON-SITE TREATMENT & DISCHARGE
	\$75.00/HR for Truck plus \$00.40/GAL Disposal		See Note 3

Notes:

- 1: Noted costs for landfill disposal are maximum costs. The TNRCC will reimburse actual costs (landfill receipts must be included with the Application for Reimbursement) plus allowable mark-up.
- 2: The noted alternative technologies for soils with >1500 PPM TPH are maximum reimbursable costs but do not include loading and hauling costs. Where appropriate, onsite use of these technologies should be considered to avoid loading and hauling costs. If the owner/operator decides to use these technologies on soils with <1500 TPH when a less expensive disposal option is available, the TNRCC will reimburse the cost of the least expensive option and the owner/operator will absorb the remaining costs.
- 3: The TNRCC will not pay for the disposal of water that collects in an excavation because that excavation was improperly bermed. Such water must be sampled, at the owner/operator's cost, to determine if it is impacted and special handling is necessary. The cost of testing and subsequent disposal of groundwater recharging into an excavation is reimbursable. Once the determination has been made that special handling is required, the owner/operator should select the most cost effective method of waste disposal. For the majority of sites in Texas, this method will be the use of vacuum trucks. In certain areas of the state that are isolated by distance from companies that provide this service, on-site treatment and discharge may be appropriate. A cost comparison should be made in the cost proposal and workplan and these costs will be reviewed on a case-by-case basis.
- 4: Soils generated during Site Assessments should be drummed or covered and held onsite pending the receipt of analytical results. If landfill disposal is necessary, the TNRCC will pay \$45.00/drum or \$45.00/CY maximum disposal costs. See Note 1.

PART 8: REPORT GENERATION COSTS

This section should be used to determine the reimbursable costs for all report forms except Risk Assessments and Corrective Action Plans.

REPORT FORM TYPE	PERSONNEL TYPE	RATE/HR	HOURS	TOTAL
RELEASE DETERMINATION REPORT				
	Project Manager (PM)	\$80.00	2	\$160.00
	Word Processor (WP)	\$35.00	1	\$35.00
			TOTAL	\$195.00
FIELD ACTIVITY REPORT (FAR) - SEMI-ANNUAL PSH RECOVERY, PSH RECOVERY SYSTEM O&M				
	Associate Engineer (P1)	\$85.00	1	\$85.00
	Staff Engineer/Geologist (SF)	\$70.00	2	\$140.00
	WP	\$35.00	1	\$35.00
			TOTAL	\$260.00
INTERIM CORRECTIVE ACTION PLAN (ICAP)				
	Principal Engineer (P3)	\$110.00	1	\$110.00
	P1	\$85.00	3	\$255.00
	PM	\$80.00	2	\$160.00
	SF	\$70.00	12	\$840.00
	Draftsperson II (D2)	\$50.00	5	\$250.00
	WP	\$35.00	6	\$210.00
			TOTAL	\$1,825.00
FAR- PSH RECOVERY SYSTEM INSTALLATION				
	P3	1	\$110.00	\$110.00
	SF	8	\$70.00	\$560.00
	D2	3	\$50.00	\$150.00
	WP	1	\$35.00	\$35.00
			TOTAL	\$855.00
RISK ASSESSMENT UPDATE or FAR - SITE ASSESSMENT - See Note				
	PM	\$80.00	1	\$80.00
	SF	\$70.00	4	\$280.00
	WP	\$35.00	1	\$35.00
	D2	\$45.00	2	\$90.00
			TOTAL	\$485.00- See Note 1

FAR- REMEDIATION SYSTEM INSTALLATION (EXCEPT PSH RECOVERY SYSTEM)
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	Senior Engineer (P2)	\$95.00	2	\$190.00
	P1	\$85.00	4	\$340.00
	SF	\$70.00	20	\$1,400.00
	WP	\$35.00	2	\$70.00
	D2	\$50.00	6	\$300.00
			TOTAL	\$2,300.00
FAR- CORRECTIVE ACTION PLAN ADDENDUM				
	P1	\$85.00	2	\$170.00
	WP	\$35.00	1	\$35.00
	D2	\$50.00	2	\$100.00
			TOTAL	\$305.00
ANNUAL REPORT- GROUNDWATER MONITORING ONLY				
	PM	\$80.00	1	\$80.00
	SF	\$70.00	4	\$280.00
	WP	\$35.00	1	\$35.00
	D1	\$45.00	1	\$45.00
			TOTAL	\$440.00
ANNUAL REPORT- OPERATION, MONITORING, AND PERFORMANCE				
	P2	\$95.00	2	\$190.00
	PM	\$80.00	5	\$400.00
	SF	\$70.00	6	\$420.00
	WP	\$35.00	3	\$105.00
	D1	\$45.00	4	\$180.00
			TOTAL	\$1,295.00
SITE CLOSURE REQUEST				
	PM	\$80.00	3	\$240.00
	WP	\$35.00	1	\$35.00
			TOTAL	\$275.00
FINAL SITE CLOSURE REPORT				
	PM	\$80.00	2	\$160.00
	WP	\$35.00	1	\$35.00
			TOTAL	\$195.00
Notes:				
1: This cost is for a Risk Assessment Update or for an FAR in which one boring or monitoring well was installed. DI, WP, and PM time may be increased ½ hour (\$80.00) for every monitoring well or soil boring installed during a given event. In addition, the RCAS may bill PM (2 hrs.), DI (2 hrs.), and WP (1 hr.) time totaling \$285.00 for the first day of Direct Push, and \$142.50 for every additional ½ day of Direct Push.				

PART 9: MARK-UP

ITEM	MAXIMUM ALLOWABLE MARK-UP
LABORATORY COSTS	10%
WASTE MANAGEMENT	10%
UTILITIES	10%
SUBCONTRACTED PROFESSIONAL PERSONNEL	10%
ALL OTHER SUBCONTRACTOR INVOICES	15%

Notes:

1: Mark-up is allowed for the primary contractor and/or the Registered Corrective Action Specialist (consultant). It may only be added to subcontractor invoices. It may applied only once (for instance, a consultant may not charge a mark-up upon a cost which has been marked-up by a subcontractor).

2: Consultants and contractors may not charge a mark-up on their own internal expenses.

3: Retail mark-up is not allowed. All invoices on which a mark-up is being applied **must** be submitted with the Application for Reimbursement.

PART 10: CHANGE ORDERS

The preapproved workplan and cost proposal represent the accepted activity to be performed and the maximum reimbursable cost for that activity (including allowable markup). Modifications to the preapproved workplan and cost proposal can be made only as follows:

Field Activity Change Orders

On occasion, site specific circumstances and unforeseeable developments can result in an owner/operator incurring expenses exceeding the preapproved maximum cost. Examples of situations where this can occur are costs associated with drilling delays due to bad weather, or additional costs associated with hitting an unanticipated rock layer while drilling. Please note that these situations are related to field activities and not office associated activities. Depending on the magnitude of the unforeseen problem, the owner/operator should proceed as follows:

Field activity changes resulting in a cost change greater than 7% of the preapproved amount:

If unanticipated events occur in the field during the performance of a preapproved activity which cause an additional expense exceeding 7% of the total preapproved amount (e.g., an amount greater than \$1,400.00 on an activity preapproved for \$20,000.00), then preapproval must be obtained from the TNRCC before continuing the activity. Failure to obtain the infield approval will result in the additional costs being nonreimbursable. Conditional verbal approval can be obtained from the TNRCC to continue with the activity while in the field, however, final approval of the activity and costs will be granted only after the review of a submitted field change order. The change order must detail the additional field activities and associated costs and must conform to the standard workplan and cost proposal format.

Field activity changes resulting in a cost change exceeding the preapproved amount, but is less than or equal to 7%:

If unanticipated events occur in the field during the performance of a preapproved activity which cause an additional expense exceeding the total preapproved amount, but is less than or equal to 7% of the total preapproved amount (e.g., an amount less than or equal to \$1,400.00 on an activity preapproved for \$20,000.00), then a change order detailing the additional field activities and associated costs must be submitted at the completion of the activity and must conform to the standard workplan and cost proposal format. Infield approval prior to continuing the activity is not required. Approval of the change order will be granted only after the review of a submitted field change order.

Field activity changes resulting in a cost change which is less than the preapproved amount:

If unanticipated events occur in the field during the performance of a preapproved activity which cause some of the scope of work items to be eliminated or not performed, then the associated costs should be reduced. A change order does not need to be submitted for approval; however, documentation should be submitted to document the change in work scope and indicating that this activity has been completed. Should it be determined that the activity is incomplete and the original scope of work should be performed, then that scope of work should be completed for the original preapproved amount.

General Change Orders

During the performance of a preapproved activity, should any unanticipated non-field-activity events occur which cause an additional expense exceeding the total preapproved amount (e.g., additional personnel hours needed to handle a change in municipal permit requirements), a change order detailing the additional activities and associated costs must be submitted and must conform to the normal workplan and cost proposal format. Preapproval must be obtained from the TNRCC prior to initiating the additional activities. Failure to obtain the preapproval will result in the additional costs being nonreimbursable. Final approval will be granted only after the review of a submitted general change order.

For any of the above-referenced change orders, a copy of the change order documentation detailing the additional activities and associated costs along with a copy of the original preapproved cost proposal must be submitted with the application for reimbursement to be considered for reimbursement. In all cases, the change order should document only the additional scope of work and the additional expenses (e.g., the additional \$1,400.00 on an activity preapproved for \$20,000.00), not the total activity. If the owner/operator continues to complete the activity without preapproval of the additional activities, then the excess costs are nonreimbursable.

Change orders are intended for costs for unforeseen or unanticipated events and are not to be used for adding profit, forgotten items, etc. All change orders must be documented and justified. If it is determined that the change order is not warranted or sufficient justification has not been provided, the change order will not be approved.

APPENDIX B
DEFINITIONS and ACRONYMS

PART 1: DEFINITIONS

FREE PRODUCT MIGRATION- The continuous movement of free product from the subsurface of the ground to the surface or from the subsurface into a subsurface receptor.

FREE PRODUCT- (Also, phase-separated product. Also phase-separated hydrocarbon. Also phase separated petroleum. Also LNAPL.) A regulated substance in its free-flowing non-aqueous liquid phase at standard conditions of temperature and pressure (i.e., liquid not dissolved in water or adhering to soil) **that is also a “recoverable free product” by the definition in this section.** It is distinct and visually separable from the surrounding media. This definition does not including hydrocarbon “sheens.”

LNAPL- Light non-aqueous phase liquid- See “Free Product.”

PHASE-SEPARATED PRODUCT- See “Free product.”

PHASE-SEPARATED HYDROCARBON- See “Free product.”

PHASE SEPARATED PETROLEUM- See “Free Product.”

RECOVERABLE FREE PRODUCT- (Also, Recoverable Phase -Separated Product. Also Recoverable Phase-Separated Hydrocarbon) (1) Any free product in continuous movement from the subsurface of the ground to the surface. (2) Free product in a subsurface receptor with a thickness greater than 1/10th of one foot. For reimbursement purposes, this does not include free product in tankhold observation wells unless the site meets the requirements of 30 TAC 334.302 (a)(1).

RECOVERABLE PHASE-SEPARATED HYDROCARBON- See “Recoverable free product.”

RECOVERABLE PHASE-SEPARATED PRODUCT- See “Recoverable free product.”

NOTE: SEE 30 TAC §334.322, CONCERNING SUBCHAPTER H DEFINITIONS, FOR ADDITIONAL DEFINITIONS.

PART 2: ACRONYMS

§	Section
AST	Aboveground Storage Tank
BOD	Biological Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Total Xylenes
CAD/CADD	Computer Aided Drafting/Computer Aided Drafting & Design
CAP	Corrective Action Plan
CAPM	Corrective Action Project Manager
COD	Chemical Oxygen Demand
cft	Cubic Feet (volume)
cy	Cubic Yard (volume)
cfm	Cubic Feet per Minute (air flow)
DNAPL	Dense Non-Aqueous Phase Liquid (sinks in water)
DO	Dissolved Oxygen
EPA	United States Environmental Protection Agency
FAR	Field Activity Report
FID	Flame Ionization Detector
ft	Feet (length)
GC	Gas Chromatograph
gpm	Gallons per Minute
hp	Horsepower
hr	Hour
ICAP	Interim Corrective Action Plan
ICU	Internal Combustion Unit
kg	Kilogram
l	Liter
lbs	Pounds
LF	Linear Feet
LEL	Lower Explosive Limit
LNAPL	Light Non-Aqueous Phase Liquid (floats on water)
LPST	Leaking Petroleum Storage Tank
mg	Milligram
MTBE	Methyl Tertiary Butyl Ether
MW	Monitoring Well
NAPL	Non-Aqueous Phase Liquid
O&M	Operation and Maintenance
OMP/OM&P	Operation, Maintenance, and Performance
OVM	Organic Vapor Meter (see FID, PID)
PAH	Polynuclear Aromatic Hydrocarbon
PE	Professional Engineer
PID	Photo-Ionization Detector
PM	Project Manager
ppb	Parts per Billion
PPE	Personal Protective Equipment
ppm	Parts per Million
PSH	Phase-Separated Hydrocarbon
PST	Petroleum Storage Tank
QA/QC	Quality Assurance/Quality Control
RA	Risk Assessment
RAP	Remedial Action Plan
RBA	Risk Based Assessment
RBCA	Risk Based Corrective Action
RCAS	Registered Corrective Action Specialist
RCG	Reimbursable Cost Guidelines
RP	Responsible Party
Semi-VOA	Semi-Volatile Organic Aromatic
Semi-VOC	Semi-Volatile Organic Compound
SqFt, sf	Square Foot (area)
SVE	Soil Vapor Extraction
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TOX	Total Organic Halogen
TPH	Total Petroleum Hydrocarbons
TNRCC	Texas Natural Resource Conservation Commission
TWC	Texas Water Commission (now the TNRCC)
ug	Microgram
UST	Underground Storage Tank
VES	Vapor Extraction System
VOA	Volatile Organic Aromatic
VOC	Volatile Organic Compound
yd	Yard (length)