

**Underground Storage Tank Cleanup Fund
2013 Cost Guidelines**

Cost Guidelines Tab Table of Contents	
Personnel Labor Rates	Page 1
Lab Analysis	Page 2
On-Site Laboratories	Page 3
Lab Analysis (Air)	Page 4
Supplies	Page 5
Small Items	Page 6
Equipment (Small)	Page 7
Equipment (Heavy)	Page 8
Equipment (Drilling)	Page 9
Drilling	Page 10
Miscellaneous Drilling Costs	Page 11
Direct Push Tech	Page 12
Preliminary Site Assessment Phase Work Plan	Page 13
Soil And Water Investigation Work Plan	Page 14
Interim Remedial Action Work Plan	Page 15
Community Health and Safety Plan	Page 16
Cone Penetrometer Test: Installation of 8 CPT probes to 30 ft	Page 17
Hand Augering: Installation of 5 hand augers borings to 10 ft	Page 18
Soil Boring Installation: Installation of 3 borings to 30 ft	Page 19
Soil Boring Installation: Installation of 6 borings to 50ft	Page 20
Trench/Test Pit Excavation: Excavation of 30 ft of trench to 15 ft.	Page 21
Hydropunch®1: Installation of 6 sample probes to 30 ft to sample groundwater	Page 22
Groundwater Well Installation: Installation of 3 borings to 30 ft, converted to 2 inch monitoring wells.	Page 23
Groundwater Well Installation: Installation of six (6) borings to fifty (50) feet, converted to two inch monitoring wells.	Page 24
Well Development	Page 25
Vapor Test (8 hour)	Page 26
Pump Test (48 hour)	Page 27
Free Product Removal: up to six (6) wells	Page 28
Groundwater Monitoring Event: three (3) wells at thirty (30) feet.	Page 29
Groundwater Monitoring Event: six (6) wells at fifty (50) feet.	Page 30
Periodic Groundwater Monitoring Report: Three (3) wells, no other activity conducted.	Page 31
Periodic Groundwater Monitoring Report: Six (6) wells, no other activity conducted.	Page 32
A)Periodic Update Report: Significant activities conducted. B)Periodic Update Report: No activities conducted during reporting period.	Page 33
Site Assessment Report: six(6) borings to thirty (30) feet, three (3) converted to monitoring wells	Page 34
A)Corrective Action Plan Preparation: Basic site with moderate groundwater and soil contamination. B)Corrective Action Plan Preparation: Complicated site with extensive groundwater and soil contamination, difficult hydrogeology and multiple contaminants	Page 35
A)Remedial Action Plan Preparation: Basic site with moderate groundwater and soil contamination. B)Remedial Action Plan Preparation: Complicated site with extensive groundwater and soil contamination, difficult hydrogeology and multiple contaminants.	Page 36
A) Excavate and segregate overburden and contaminated soil B) Consulting Excavation	Page 37
A) System Operations and Maintenance B) Operations and Maintenance Supplies	Page 38
A) Contaminated Soil B) Contaminated Liquid C) Containerized Waste	Page 39
A) Off-site Remediation B) Off-site Disposal	Page 40
Clean up Progress Report	Page 41
A) Site Survey B) Underground Utility Check C)Traffic Control	Page 42
Total Subcontract or Equipment Mark-Up Amount	Page 43
After Tank Removal, Overexcavate and Dispose of 150 Yd3 of Petroleum Contaminated Soil	Page 44

Typical Personnel Labor Rates			
Professional Staff Title/Classification	Billable Rate (\$/hr) 2001	2006	CPI 2013 Rate
Principal Engineer/Geologist	125	145	165
Project Manager	105	120	139
Senior Engineer/Geologist	105	120	139
Project/Associate Engineer/Geologist	90	105	119
Staff Engineer/Geologist	75	90	99
Senior Technician	70	80	92
Technician	60	70	79
Drafts Person	55	65	73
Clerical	45	55	59

Lab Analysis (Soil & Water)			
EPA Method1	Component	Cost 2001	CPI 2013 Rate
8015	Total Petroleum Hydrocarbons (TPH)-gasoline	55	73
8015	Total Petroleum Hydrocarbons (TPH)-diesel/motor oil	65	86
8020	BTEX/MTBE	55	73
8015/8020	TPH/BTEX/MTBE (gasoline only)	65	86
8260 (incl. Oxygenates)	Volatile Organic Compounds	150	198
8270	Semi-Volatile Organic Compounds	275	363
6010/7421	Total Lead ²	40	53
	Waste Characterization (Reactivity/Corrosivity/Ignitability)	180	238
	5 LUFT Metals ³	80	106
	CAM 17 Metals ³	175	231

On-Site Laboratories			
Flat Fee		Cost 2001	CPI 2013 Rate
Daily Rental Fee	EPA Method 8015/8020	1,500/day	1980
	EPA Method 8015/8260	2,000/day	2640
Variable Fee			
Mobilization/Daily Fee	Includes daily mobilization, chemist, and all equipment, supplies and disposal	400/day	528
Analysis Charges	EPA Method 8015/8020	50/ea	66
	EPA Method 8015/8260	115/ea	152

Lab Analysis (Air)		
Component	Cost 2001	CPI 2013 Rate
TPH	60.00	79
BTEX/MTBE	115.00	152
EPA Method 8260	200.00	264

Supplies (Field, Wells, Miscellaneous)		Size/Unit	Cost 2001	CPI 2013 Rate
Field Supplies				
	Soil Sampling Liners (Brass)	2" x 6"	6	8
	Soil Sampling Liners (Stainless Steel)	2" x 6"	10	13
	Bailers (disposable) polypropylene	1.5" O.D.	8	11
	Tedlar Bags (1 liter)	Each	10	13
	Film/Development	Roll	At Cost	At Cost
Well Supplies				
2" PVC, Schedule 40				
	PVC Well Casing (10' lengths)	Per Foot	4	5
	PVC Well Screen 0.010" & 0.020" (Up to 5' Lengths)	Per Foot	5	6
	PVC Well Screen 0.010" & 0.020" (Up to 10' Lengths)	Per Foot	4	5
	Threaded Cap (Top or Bottom)	Each	8	10
	Slip Cap	Each	4	5
	Locking Cap	Each	20	26
4" PVC, Schedule 40				
	PVC Well Casing (10' lengths)	Per Foot	6	8
	PVC Well Screen 0.010" & 0.020" (Up to 5' Lengths)	Per Foot	9	12
	PVC Well Screen 0.010" & 0.020" (Up to 10' Lengths)	Per Foot	8	10
	Threaded Cap (Top or Bottom)	Each	14	18
	Slip Cap	Each	8	11
	Locking Cap	Each	22	29
Concrete				
	Ready Mix	90 lb. Bag	5	7
	Portland Cement Concrete	90 lb. Bag	8	11
	Sand Cement slurry Backfill w/ Delivery	Cubic Yard	60	79
Grout				
	Bentonite Grout	50 lb. Bag	10	13
	Bentonite Chips	50 lb. Bag	10	13
	Bentonite Granular	50 lb. Bag	10	13
	Bentonite Tablets	50 lb. Bag	40	53
Supplies (Field, Wells, Miscellaneous)		Size/Unit	Cost	Cost
Sand				
	Monterey Sand	100 lb. Bag	9	11
	Silica Sand	100 lb. Bag	8	11
Well Covers				
	Manholes(locking/tight/Traffic Rated)	8 inch	50	66
	Manholes(locking/tight/Traffic Rated)	12 inch	75	99
	Standpipe, steel, locking	8" dia.x 3'	100	132
	Christy Box	8 inch	75	99
	Christy Box	12 inch	100	132
Miscellaneous				
	Padlocks	Each	10	13
	Asphalt Patch (Cold-Mix)	50 lb. Bag	10	13
	55 gallon drum	Each	40	53
	Visqueen 6 mil, 20'x100'	Roll	75	99
	Tyvek Suits	Each	6	8

Small Items	\$/day (2001)	CPI 2013 Rate
For example: gloves, water, ropes, tape, soap, twine, pens, bottles, paint, warning tape, distilled water etc.	25	33

2001				
Equipment (Small)		Daily	Weekly	Monthly
Air Compressor		85	315	
Concrete Coring/Cutting Equipment				
	Coring Machine - 8" diameter (including bit)	75	250	
	Concrete Saw	75	250	
Fence				
	Chain link \$/100 ft		100	400
Field Instruments				
	Datalogger (2 channel)	65	325	
	Photo-ionization Detector (PID)	100	350	
	Flame Ionization Detector (FID)	150	500	
	Water Level Indicator	25	85	
	Oil/Water Interface Probe	40	125	
	pH/Conductivity/Temperature Meter	40	125	
	Dissolved Oxygen Meter	40	125	
	Combustible Gas Meter (LEL/O ₂)	50	175	
	Turbidity Meter	20	70	
Field Sampling Equipment				
	Bailer (reusable teflon)	20		
	Hand Auger	25	85	
	Core Sampler & Hammer	5	20	
Equipment (Small)		Daily	Weekly	Monthly
Generators, gasoline/diesel powered				
	Generator, 1-3 kW	40	150	
	Generator, 5-6 kW	55	200	
	Steam Cleaner	75	250	
Pumps				
	Gasoline Powered Pump 2" dia., 150 gpm	55	200	
	Pump, Submersible, 10 gpm	45	150	
	D.C. Purging Pump 3 gpm	15	50	
Skimmers/Separators/Hydrocarbon Recovery				
	Passive Skimmer (1 liter)			15
	Electric Skimmer			125
	Filter Separator			100
Storage Tanks				
	Storage Tanks, 1,000 gallon	13	85	325
	Storage Tanks, 5,000 gallon	19	125	500
	Storage Tanks, 21,000 gallon	30	210	840
	Rolloff Bin	19	95	350
Survey Equipment				
	Level/transit, tripod, rod/prism, tape/chain	35	140	
Traffic Control Components				
	Barricades		5	20
	Cones/Delineators (25 each)	8	35	

CPI 2013 Rate		
Daily	Weekly	Monthly
112	416	
99	330	
99	330	
Fence		
0	132	528
Field Instruments		
86	429	
132	462	
198	660	
33	112	
53	165	
53	165	
53	165	
66	231	
26	92	
Field Sampling Equipment		
26		
33	112	
7	26	
Equipment (Small)		
Generators, gasoline/diesel powered		
53	198	
73	264	
99	330	
Pumps		
73	264	
59	198	
20	66	
Skimmers/Separators/Hydrocarbon/Recovery		
		20
		165
		132
Storage Tanks		
17	112	429
24	165	660
40	277	1109
25	125	462
Survey Equipment		
46	185	
Traffic Control Components		
0	7	26
11	46	

2001			
Equipment (Heavy)	Hourly	Daily	Weekly
Backhoe (operated)	90	720	3600
Compactor (compaction wheel or vibraplate)		125	650
Excavator (operated)	140	1100	5500
Loaders (operated)			
Bob cat	75	600	3000
Loader	120	960	4800
Trucks			
Truck /Automobile	Lesser of \$60.00/day or \$0.50/mile		
Specialized Equipment Truck (4WD)	Lesser of \$75.00/day or \$0.60/mile		
Truck - 10 cubic yard (operated)	65	520	2600
Truck - 20 cubic yard (operated)	75	600	3000
Vacuum Truck (operated)	75	600	3000

CPI 2013 Rate		
Hourly	Daily	Weekly
119	950	4752
0	165	858
185	1452	7260
Loaders (operated)		
99	792	3960
158	1267	6336
Trucks		
	\$0.565/mile	
	\$0.565/mile	
86	686	3432
99	792	3960
99	792	3960

2001		
Equipment (Drilling)	Hourly	Daily
Mobilization/Demobilization (4 hour maximum)	100	
Hollow Stem Auger Drill Rig	130	
Rotary Drill Rig	160	
Direct Push Technology Rig	130	
Steam Cleaner		75
Cement Pump		60
Support Truck/Van		85
Compressor with Paving Breaker		85
Concrete Coring Machine		75
Generator (3500 watt)		55

CPI 2013 Rate	
Hourly	Daily
132	
172	
211	
172	
	99
	79
	112
	112
	99
	73

2001			CPI 2013 Rate
Drilling (Soil Borings, Monitoring Wells)			
Description	Depth	\$/ft	2013 \$/ft
Borings: backfill with cement/bentonite slurry mixture	0 to 50 feet	18	24
Borings: backfill with cement/bentonite slurry mixture	50 to 100 feet	18	24
Borings: backfill with cement/bentonite slurry mixture	>100 feet	18	24
Wells: includes borehole drilling, PVC screen and blank schedule 40, end plug, locking cap, sand, bucket of bentonite pellets for seal, concrete grout, and well box; also includes 15 minutes surging time to set sand pack. This rate would be less if no sampling is needed during drilling.			
2" PVC	0 to 50 feet	34	45
2" PVC	50 to 100 feet	33	44
2" PVC	>100 feet	32	42
4" PVC	0 to 50 feet	40	53
4" PVC	50 to 100 feet	39	51
4" PVC	>100 feet	38	50
Well Demolition: drilling rig costs, includes backfill			
2" PVC		16	21
4" PVC		20	26

Miscellaneous Drilling Costs 2001			CPI 2013 Rate
Description	Unit	\$/Unit	\$/Unit
Additional Well Development	Hourly	110	145
Continuous Core Sampling	Additional \$/ft	5	7
Angle Drilling	Additional \$/ft	5	7

Cone Penetrometer/Geoprobe/Hydropunch		
Description	\$/ft	2013 \$/ft
Includes: CPT Equipment, vehicle, labor, professional oversight, all necessary supplies, replacement tips, grout, sample rings and all other necessities to perform field work.	25	33

Preliminary Site Assessment Phase Workplan							
2001 Rate					CPI 2013 Rate		
Personnel	Description of work	Units	Rate	Cost	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	1	125	125	1	165	165
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	8	90	720	8	119	950
Staff Engineer/Geologist	Initial Site Concept. Model/plan prep.	8	75	600	8	99	792
Drafts Person	Prepare site & sampling location maps	3	55	165	3	73	218
Clerical	Typing/reproduction/ mailing	3	45	135	3	59	178
Total Cost				1,745.00	Total Cost		2,303

Soil and Water Investigation Phase Workplan2001						
2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	1	125	125	165	165
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	10	90	900	119	1188
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	12	75	900	99	1188
Drafts Person	Prepare site & sampling location maps	4	55	220	73	290
Clerical	Typing/reproduction/mailing	4	45	180	59	238
Total Cost				2325	Total Costs	3069

Interim Remedial Action Workplan 2001						
2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	1	125	125	165	165
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	6	90	540	119	713
Staff Engineer/Geologist	Workplan preparation	4	75	300	99	396
Drafts Person	Prepare site & sampling location maps	4	55	220	73	290
Clerical	Typing/reproduction/mailing	3	45	135	59	178
Total Cost				1320	Total	1742

Community Health and Safety Plan 2001						
2001 Rate					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	0.5	125	63	165	83
Project/Associate Engineer/Geologist	Regulatory liaison and plan preparation	6	90	540	119	713
Drafts Person	Site, vicinity, hospital location maps	4	55	220	72.6	290
Clerical	Typing/reproduction/ mailing	3	45	135	59.4	178
Total Cost				958	Total Costs	1264

Cone Penetrometer Test: Installation of eight (8) CPT probes to thirty (30) feet 2001						
2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630	139	832
Staff Engineer/Geologist	Field Prep./Permit/Fieldwork	12	75	900	99	1188
Total Labor				1530	Total Labor	2020
Equipment Rental/Supplies	Units					
Gas Monitor (PID)	day	1	100	100	132	132
Truck	day	1	60	60	0	0
Misc. Field Items	day	1	25	25	33	33
Total Equipment				185	Total Equipment	165
Subcontractor	Units					
Driller	feet	240	25	6000	33	7920
Analytical (EPA 8015)	each	8	65	520	86	686
Analytical (EPA 8260 w/oxygenates)	each	8	150	1200	198	1584
Markup		7720	0.15	1158	1019.00	10190.00
Total Subcontractor				8,878.00	Total Subcontractor	11,209
Total Cost				10,593.00	Total Cost	13,394

Hand Augering: Installation of five (5) hand augers borings to ten (10) feet 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	2	105	210
Staff Engineer/Geologist	Field work/QA	10	75	750
Technician	Field work	10	60	600
Total Labor				1560.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	1	60	60
Hand Auger	each	1	30	30
Coring Machine	day	1	75	75
Misc. Field Items	day	1	25	25
Total Equipment				290.00
Subcontractor	Units			
Analytical (EPA 8015)	each	6	65	390
Analytical (EPA 8260 w/oxygenates)	each	6	150	900
Markup		1290	0.15	194
Total Subcontractor				1483.50
Total Cost				3333.50

CPI 2013 Rate	
Rate	Cost
139	277
99	990
79	792
Total Labor	2059.20
132	132
0	0
40	40
99	99
33	33
Total Equipment	303.60
86	515
198	1188
Subcontractor Total	1703
10% Markup	170
Total Subcontractor	1873
Total Cost	4236

Soil Boring Installation: Installation of three (3) borings to thirty (30) feet 2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630	139	832
Staff Engineer/Geologist	Field prep./Permit/Fieldwork	12	75	900	99	1188
Total Labor				1530.00	Total Labor	2,020
Equipment Rental/Supplies	Units					
Gas Monitor (PID)	day	1	100	100	132	132
Truck	day	1	60	60	0	0
Drums	each	6	40	240	53	317
Soil Sampling Liners	each	15	6	90	8	119
Misc. Field Items	day	1	25	25	33	33
Total Equipment				515.00	Total Equipment	600.60
Subcontractor	Units					
Driller Mobilization	hour	4	100	400	132	528
Driller	feet	90	18	1620	24	2138
Analytical (EPA 8015)	each	15	65	975	86	1287
Analytical (EPA 8260 w/oxygenates)	each	15	150	2250	198	2970
Markup		5245	0.15	786.75	Subcontractor Total 6923	
Total Subcontractor				6031.75	10% Markup	692
Total Cost				8076.75	Total Subcontractor	7616
					Total Cost	10236

Soil Boring Installation: Installation of six (6) borings to fifty (50) feet 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	10	105	1050
Staff Engineer/Geologist	Field prep./Permit/Fieldwork	30	75	2250
Total Labor				3300.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	3	100	300
Truck	day	3	60	180
Visqueen	roll	1	75	75
Soil Sampling Liners	each	48	6	288
Misc. Field Items	day	3	25	75
Total Equipment				918.00
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	300	18	5400
Analytical (EPA 8015)	each	48	65	3120
Analytical (EPA 8260 w/oxygenates)	each	48	150	7200
Markup		16120	0.15	2418
Total Subcontractor				18538.00
Total Cost				22756.00

CPI 2013 Rate	
Rate	Cost
139	1386
99	2970
Total Labor	4356.00
132	396
0	0
99	99
8	380
33	99
Total Equipment	974
132	528
24	7128
86	4118
198	9504
Subcontractor Total	21278
10% Markup	2128
Subcontractor Cost	23406
Total Cost	28736

Trench/Test Pit Excavation: Excavation of thirty (30) feet of trench to 15 feet 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630
Staff Engineer/Geologist	Field preparation/Fieldwork	10	75	750
Total Labor				1380.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	1	60	60
Visqueen	roll	1	75	75
Misc. Field Items	day	1	25	25
Total Equipment				260.00
Subcontractor	Units			
Backhoe (w/operator)	hour	8	90	720
Backfill	Yd3	35	15	525
Analytical (EPA 8015)	each	6	65	390
Analytical (EPA 8260 w/oxygenates)	each	6	150	900
Markup		2535	0.15	380.25
Total Subcontractor				2915.25
Total Cost				4555.25

CPI 2013 Rate	
Rate	Cost
139	832
99	990
Total Labor	
	1822
Total Equipment	
	264.00
132	132
0	0
99	99
33	33
Total Equipment	
	264.00
Subcontractor Total	
	3346
10% Markup	335
Total Subcontractor	
	3680.82
Total Cost	
	5766.42

Hydropunch®1: Installation of six (6) sample probes to thirty (30) feet to sample groundwater 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630
Staff Engineer/Geologist	Field preparation/Fieldwork	12	75	900
Total Labor				1530.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	1	60	60
Misc. Field Items	day	1	25	25
Total Equipment				185
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	180	25	4500
Analytical (EPA 8015)	each	9	65	585
Analytical (EPA 8260 w/oxygenates)	each	9	150	1350
Markup		6835	0.15	1025.25
Total Subcontractor				7860.25
Total Cost				9575.25
1Any mention of brand names or specific technologies is not an endorsement of that brand or technology by the State, the Fund, or any of the staff. The mention of brands and names are purely for illustrative purposes.				

CPI 2013 Rate	
Rate	Cost
139	832
99	1188
Total Labor	2020
132	132
0	0
33	33
Total Equipment	165
132	528
33	5940
86	772
198	1782
Subcontractor Total	9022
10% Markup	902
Total Subcontractor	9924
Total Cost	12109

Groundwater Well Installation: Installation of three (3) borings to thirty (30) feet, converted to two inch monitoring wells 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630
Staff Engineer/Geologist	Field prep./Permit/Fieldwork	16	75	1200
Total Labor				1830.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	1	60	60
Drums	each	6	40	240
Misc. Field Items	day	1	25	25
Total Equipment				425.00
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	90	34	3060
Analytical (EPA 8015)	each	15	65	975
Analytical (EPA 8260 w/oxygenates)	each	15	150	2250
Markup		6685	0.15	1002.75
Total Subcontractor				7687.75
Total Cost				9942.75

CPI 2013 Rate	
Rate	Cost
139	832
99	1584
Total Labor	2415.60
132	132
0	0
53	317
33	33
Total Equipment	482
132	528
45	4039
86	1287
198	2970
Subcontractor Total	8824
10% Markup	882
Total Subcontractor	9707
Total Cost	12604

Groundwater Well Installation: Installation of six (6) borings to fifty (50) feet, converted to two inch monitoring wells 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	12	105	1260
Staff Engineer/Geologist	Field prep./Permit/ Fieldwork	40	75	3000
Total Labor				4,260 .00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	4	100	400
Truck	day	4	60	240
Visqueen	roll	1	75	75
Misc. Field Items	day	4	25	100
Total Equipment				815
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	300	34	10200
Analytical (EPA 8015)	each	36	65	2340
Analytical (EPA 8260 w/oxygenates)	each	36	150	5400
Markup		18340	0.15	2751.00
Total Subcontractor				21091.00
Total Cost				26166.00

CPI 2013 Rate	
Rate	Cost
139	1663
99	3960
Total Labor	5623.20
132	528
0	0
99	99
33	132
Total Equipment	759
132	528
45	13464
86	3089
198	7128
Subcontractor Total	24209
10% Markup	2421
Total Subcontractor	26630
Total Cost	33012

Well Development 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	1	105	105
Technician	Develop 3 wells at 30 feet	3	60	180
Technician	Develop 6 wells at 50 feet	6	60	360
Total Labor				645
Equipment Rental/Supplies	Units			
Water Level Indicator	day	1	25	25
Truck	day	1	60	60
drums	each	3	40	120
drums	each	6	40	240
Misc. Field Items	day	1	25	25
Total Equipment				230/350
Subcontractor	Units			
Driller	hour	3	110	330
Driller	hour	6	110	660
Markup		330	0.15	49.50
Markup		660	0.15	99
Total Subcontractor				379.50/759
Total Cost/3 wells at 30 feet				894.50
Total Cost/6 wells at 50 feet				1574.00

* Only providing data for 3 wells

CPI 2013 Rate	
Rate	Cost
139	139
79	238
Total Labor	376
33	33
0	0
53	158
33	33
Total Equipment	224
145	436
	0.00
Subcontractor Total	436
10% Markup	44
Total Subcontractor	479
Total Cost	1080

Vapor Test (8 hour) 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	2	105	210
Staff Engineer/Geologist	Perform test/data analysis	12	75	900
Technician	Set-up & operation/vapor sampling	16	60	960
Total Labor				2070.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	2	60	120
VES Trailer (fully equipped)	each	1	500	500
Misc. Field Items	day	2	25	50
Total Equipment				770
Subcontractor	Units			
Analytical (BTEX/MTBE)	each	4	115	460
Markup		460	0.15	69.00
Total Subcontractor				529.00
Total Cost				3369.00

CPI 2013 Rate	
Rate	Cost
139	277
99	1188
79	1267
Total Labor	2732
132	132
0	0
660	660
33	66
Total Equipment	858
152	607
10% Markup	60.72
Total Subcontractor	668
Total Cost	4258

Pump Test (48 hour) 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	8	105	840
Project/Associate Engineer/Geologist	Test coordination/Data Analysis	24	90	2160
Technician	Set-up and run test/wastewater mgmt.	60	60	3600
Total Labor				6600.00
Equipment Rental/Supplies	Units			
Pump (submersible)	week	1	175	175
Generator	week	1	150	150
Truck	day	4	60	240
Storage Tank (21,000 gal)	month	1	840	840
Datalogger /transducers (8)	each	1	1975	1975
Misc. Field Items	day	4	25	100
Total Equipment				3480.00
Total Cost				10080.00

CPI 2013 Rate	
Rate	Cost
139	1109
119	2851
79	4752
Total Labor	8712
231	231
198	198
0	0
1109	1109
2607	2607
33	132
Total Equipment	4277
Total Equipment	12989

Free Product Removal: up to six (6) wells				
Activity	Description of work	Units	Rate	Cost
Empty and record level in skimmer	Technician (hour)	4	60	240
	Oil/Water Interface Probe (day)	1	40	40
	Truck (day)	1	60	60
	Misc. Field Supplies	1	25	25
	Total (event)			365
Manual removal of free product	Technician (hour)	6	60	360
	Oil/Water Interface Probe (day)	1	40	40
	Bailer	1	20	20
	Misc. Field Supplies	1	25	25
	Truck (day)	1	60	60
	Total (event)			505

CPI 2013 Rate	
Rate	Cost
79	317
53	53
0	0
33	33
Total (event)	403
79	475
53	53
26	26
33	33
0	0
Total (event)	587

Groundwater Monitoring Event: three (3) wells at thirty (30) feet.				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	1	105	105
Technician	Field prep./Fieldwork	8	60	480
Total Labor				585
Equipment Rental/Supplies	Units			
Pump	day	1	15	15
Truck	day	1	60	60
Drums	each	3	40	120
PH/Conductivity/ Temperature Meter	day	1	40	40
Water Level Indicator	day	1	25	25
Bailers	each	3	8	24
Misc. Field Items	day	1	25	25
Total Equipment				309.00
Subcontractor	Units			
Analytical (EPA 8015)	each	4	65	260
Analytical (EPA 8260 w/oxygenates)	each	4	150	600
Markup		860	0.15	129.00
Total Subcontractor				989.00
Total Cost				1883.00

CPI 2013 Rate	
Rate	Cost
139	139
79	634
Total Labor	
	772
20	20
0	0
53	158
53	53
33	33
11	32
33	33
Total Equipment	
	329
86	343
198	792
Subcontractor Total	
	1135.20
10% Markup	114
Subcontractor Total	
	1248.72
Total Cost	
	2349.60

Groundwater Monitoring Event: six (6) wells at fifty (50) feet.				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	2	105	210
Staff Engineer/Geologist	Field prep./Fieldwork	10	75	750
Technician	Field prep./Fieldwork	10	60	600
Total Labor				1560
Equipment Rental/Supplies	Units			
Pump	day	1	15	15
Truck	day	1	60	60
Drums	each	6	40	240
PH/Conductivity/Temperature Meter	day	1	40	40
Water Level Indicator	day	1	25	25
Bailers	each	6	8	48
Misc. Field Items	day	1	25	25
Total Equipment				453.00
Subcontractor	Units			
Analytical (EPA 8015)	each	7	65	455
Analytical (EPA 8260 w/oxygenates)	each	7	150	1050
Markup		1505	0.15	225.75
Total Subcontractor				1730.75
Total Cost				3743.75

CPI 2013 Rate	
Rate	Cost
139	277
99	990
79	792
Total Labor	2059
20	20
0	0
53	317
53	53
33	33
11	63
33	33
Total Equipment	518.76
86	601
198	1386
Subcontractor Total	1986.60
10% Markup	199
Subcontractor Total	2185
Total Cost	4763

Periodic Groundwater Monitoring Report: Three (3) wells, no other activity conducted.				
Personnel	Description of work	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	2	125	250
Project/Associate Engineer/Geologist	Project management, report preparation and review	6	90	540
Staff Engineer/Geologist				
Staff Engineer/Geologist	Report preparation	8	75	600
Drafts Person	Prepare report figures	4	55	220
Clerical	Typing/reproduction/mailing	4	45	180
Total Cost				1790.00
Once an initial report is prepared for a site, the subsequent reports should take less effort to prepare.				

CPI 2013 Rate	
Rate	Cost
165	330
119	713
0	0
99	792
73	290
59	238
Total Cost	2363

Periodic Groundwater Monitoring Report: Six (6) wells, no other activity conducted				
2001				
Personnel	Description of work	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	2	125	250
Project/Associate Engineer/Geologist	Project management, report preparation and review	8	90	720
Staff Engineer/Geologist				
Drafts Person	Report preparation	12	75	900
	Prepare report figures	4	55	220
Clerical	Typing/reproduction/mailing	4	45	180
Total Cost				2270.00
Once an initial report is prepared for a site, the subsequent reports should take less effort to prepare.				

CPI 2013 Rate	
Rate	Cost
165	330
119	950
99	1188
73	290
59	238
Total Cost	2996

A

Periodic Update Report: Significant activities conducted.				
Personnel	Description of work	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	1	125	125
Project/Associate Engineer/Geologist	Project management, report preparation and review	4	90	360
Drafts Person	Prepare report figures	1	55	55
Clerical	Typing/reproduction/mailing	1	45	45
Total Cost				585

CPI 2013 Rate	
Rate	Cost
165	165
119	475
0	0
73	73
59	59
Total Cost	772

B

Periodic Update Report: No activities conducted during reporting period.				
Personnel	Description of work	Units	Rate	Cost
Project/Associate Engineer/Geologist	Project management, report preparation and review	1	90	90
Clerical	Typing/reproduction/mailing	1	45	45
Total Cost				135

CPI 2013 Rate	
Rate	Cost
119	119
59	59
Total Cost	178

Site Assessment Report: six(6) borings to thirty (30) feet, three (3) converted to monitoring wells 2001				
Personnel	Description of work	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	4	125	500
Senior Engineer/Geologist	Data evaluation/conclusions & recommendations/review	8	105	840
Project/Associate Engineer/Geologist	Regulatory liaison and report preparation	16	90	1440
Staff Engineer/Geologist	Revise Site Conceptual Model/report preparation	16	75	1200
Drafts Person	Prepare site & sampling location maps	8	55	440
Clerical	Typing/reproduction/mailing	8	45	360
Total Cost				4780.00

CPI 2013 Rate	
Rate	Cost
165	660
139	1109
0	0
119	1901
0	0
99	1584
73	581
59	475
Total Cost	6310

A

Corrective Action Plan Preparation: Basic site with moderate groundwater and soil contamination.					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	4	125	500	165	660
Senior Engineer/Geologist	Review and signature	12	105	1260	139	1663
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	20	90	1800	119	2376
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	20	75	1500	99	1980
Drafts Person	Prepare site & sampling location maps	12	55	660	73	871
Clerical	Typing/reproduction/m ailing	8	45	360	59	475
Total Cost				6080.00	Total Cost	8026

B

Corrective Action Plan Preparation: Complicated site with extensive groundwater and soil contamination, difficult hydrogeology and multiple contaminants.					CPI 2013 Rate	
2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	6	125	750	165	990
Senior Engineer/Geologist	Review and signature	12	105	1260	139	1663
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	32	90	2880	119	3802
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	32	75	2400	0	0
Drafts Person	Prepare site & sampling location maps	16	55	880	99	3168
Clerical	Typing/reproduction/m ailing	12	45	540	73	1162
Total Cost				8710.00	Total Cost	11497

A

Remedial Action Plan Preparation: Basic site with moderate groundwater and soil contamination.					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	4	125	500	165	660
Senior Engineer/Geologist	Remedial design, review and signature	8	105	840	139	1109
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	12	90	1080	119	1426
Staff Engineer/Geologist	Plan preparation	12	75	900	99	1188
Drafts Person	Prepare figures and design drawings	8	55	440	73	581
Clerical	Typing/reproduction/mailing	8	45	360	59	475
Total Cost				4120.00	Total Cost	5438

B

Remedial Action Plan Preparation: Complicated site with extensive groundwater and soil contamination, difficult hydrogeology and multiple contaminants.					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	4	125	500	165	660
Senior Engineer/Geologist	Remedial design, review and signature	16	105	1680	139	2218
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	24	90	2160	119	2851
Staff Engineer/Geologist	Plan preparation	16	75	1200	99	1584
Drafts Person	Prepare figures and design drawings	12	55	660	73	871
Clerical	Typing/reproduction/mailing	8	45	360	59	475
Total Cost				6560.00	Total Cost	8659

Excavate and segregate overburden and contaminated soil 2001		CPI 2013
Activity	Cost/unit	Cost/Unit
Excavate	8.00/ton (12.00 yd3)	11
Replacement Material (including compaction)	12.00/ton (18.00 yd3)	16

Consulting Excavation Cost 2001			
Labor	Units	Rate	Cost
Staff Engineer/Geologist	20	75	1500
Total Labor Cost			1500.00
Equipment Rental/Supplies			
Gas Monitor (PID)	2	100	200
Truck	120	1	60
Misc. Field Items	2	25	50
Total Equipment Cost			310.00
Analytical			
EPA 8015/8020	20	65	1300
Markup	1300	0.15	195
Total Analytical			1495.00
Total Consultant Cost			3305.00

CPI 2013 Rate	
Rate	Cost
99	1980
Total Labor Cost	
	1926.45
132	264
	0
33	66
Total Equipment Cost	
	330.00
85.80	1716.00
10% Markup	172
Total Analytical	
	1887.60
Total Consultant Cost	
	4144.05

Excavation Contractor Cost 2001			
Activity	Units	Rate	Cost
Excavation	500	12	6000
Backfill and Compaction	500	18	9000
Total Contractor Cost			15000.00

CPI 2013 Rate	
Rate	Cost
16	7920
24	11880
Total Contractor Cost	
	19800.00

A

System Operation and Maintenance 2001						
Consulting Costs 2001					CPI 2013 Rate	
Labor	Description of work	Units	Rate	Cost	Rate	Cost
Technician (1/04/01)	Regular field maintenance/log	4	60	240	79	317
Technician (1/11/01)	Regular field maintenance/log	4	60	240	79	317
Technician (1/18/01)	Regular field maintenance/log	4	60	240	79	317
Technician 1/25/01)	Replace vacuum gauge/oil change/ Regular field maintenance/log	4	60	240	79	317
Equipment	Description				-	-
Truck (1/04/01)	Office to site/back	60	1	30	-	-
Truck (1/11/01)	Office to site/back	60	1	30	-	-
Truck (1/18/01)	Office to site/back	60	1	30	-	-
Truck 1/25/01)	Office to site/back	60	1	30	-	-
Total Consulting Costs				1080.00	Total Consulting	1267
Supplies						
	Vacuum gauge, replace	1.00	21.55	21.55	28	28
	Markup	21.55	0.15	3.23	0.20	4
	Oil & filter (4 qt. 10-40)	1	25	25	33	33
Total Supplies Cost				49.78	Total Supplies Cost	65.71
Analytical						
	EPA 8015/8020 (air)	3	115	345	152	455
	EPA 8260 w/oxygenates (water)	3	150	450	198	594
	Markup	795	0.15	119.25	Subcontractor Total	
Total Analytical Cost				914.25	10% Markup	105
Total Cost/Month				2044.03	Total Subcontractor	1154
					Total Cost/Month	2487

B

Operations and Maintenance Supplies		CPI 2013
Replacement Granular Activated Carbon (GAC) (Liquid Phase) per pound	1.50	2
Replacement Granular Activated Carbon (GAC) (Vapor Phase) per pound	1.50	2
Miscellaneous Repair Parts	At Cost	At Cost

2001			CPI 2013 Rate	
A	Contaminated Soil:	Units	Rate	Rate
	Load		5.00/ton (7.50 yd3)	7
	Load	hourly	see equipment (heavy), page 17	
	Transportation	hourly	see equipment (heavy), page 17	
	Disposal	Ton	see soil remediation, page 57	
B	Contaminated Liquid:	Units	Rate	Rate
	Load and Transport	gallon	0.75	0.99
	Load and Transport	hourly	see equipment (heavy), page 17	
	Disposal	gallon	1	1.3
C	Containerized Waste:	Units	Rate	Rate
	Load/Transport/Dispose - Soil	55 gallon drum	100	132
	Load/Transport/Dispose - Water	55 gallon drum	100	132

A

Off-site Remediation 2001			CPI 2013
Method	Description	Cost/Unit	Cost/Unit
Asphalt	Contaminated soil used as a substitute for sand aggregate in asphalt production	\$55.00/ton	\$73
Recycling			
Thermal	Contamination is thermally desorbed from soil in a fixed facility rotary kiln and the vapors are burned in a flame burner	\$55.00/ton	\$73
Desorption			
Bioremediation	Soil is bioremediated at a dedicated facility. Costs will vary depending upon the level of contamination found in the soil.	\$45.00/ton	\$59

B

Off-site Disposal 2001			CPI 2013
Facility	Description	Cost/Unit	Cost/Unit
Class I Landfill	Accepts 'hazardous' wastes, uncommon for Petroleum UST contamination	\$150.00/ton	\$198
(Hazardous)			
Class II Landfill	Accepts designated wastes	\$40 to \$65/ton	\$52.8 to \$85.8
(Designated)			
Class III Landfill	Municipal facilities can sometimes accept varying levels depending upon their specific design and permits. May use remediated soil as "cover" material at no cost.	\$10 to \$30/ton	\$13.2 to \$39.6
(Non-hazardous)			

Cleanup Progress Report 2001				
Personnel	Description of work	Units	Rate	Cost
Principal Engineer/Geologist	Review and signature	1	125	125
Project/Associate	Regulatory liaison, project management and report preparation	8	90	720
Engineer/Geologist				
Staff Engineer/Geologist	Report preparation.	8	75	600
Drafts Person	Prepare report figures	4	55	220
Clerical	Typing/reproduction/mailing	4	45	180
Total Cost				1845

CPI 2013 Rate	
Rate	Cost
165	165
119	950
0	0
99	792
73	290
59	238
Total Cost	2435

		2001	CPI 2013
A	Site Survey:	Cost/Event	Cost/Event
	Site Survey (3 wells)	450	594
	Site Survey (6 wells)	700	924
B	Underground Utility Check:	Cost/Event	Cost/Event
	USA Notification for three drilling points	75	99
	Electromagnetic scan for underground structures	600	792
C	Traffic Control:	Cost/Day	Cost/Event
	Basic Traffic Control for closing one lane	350	462
	Extensive traffic control requiring multiple flagpersons and closure of lanes	950	1254

2001		2013
Total Subcontract or Equipment Amount	Maximum Markup	Maximum Markup
Less than \$50,000	15%	10%
Greater than 50,000	10%	10%

After Tank Removal, Overexcavate and Dispose of 150 Yd3 of Petroleum Contaminated Soil											
Consulting Costs		Task 1		Task 2		Task 3		Task 4			
	unit	rate	#units	Cost	#units	Cost	#units	Cost	#units	Cost	
Project Manager	hr	105	4	420	2	210			1	105	
Staff	hr	75	12	900	8	600					
Technician	hr	60	10	600			10	600	12	720	
			1920		810		600			825	
Equipment Rental/Supplies											
PID	day	100	1	100							
Fence w/Gate	Mo.	400	1	400							
Visqueen	roll	75	2	150							
Truck	mi.	0.5	100	50	100	50	100	50	200	100	
Misc. Supplies	day	25	1	25	1	25	1	25	2	50	
			725		75		75			150	
Subcontractor											
Backhoe	day	720	1	720					2	1,400	
Loader	day	960					1	960			
18 yds Truck	hr	75					40	3,000			
Class 2 LF Fees	ton	65					225	14,625			
Soil Backfill	ton	12					200	2,400			
Gravel Backfill	ton	12					5	60			
Asphalt Saw	hr	50					4	200	4	200	
Asphalt Disp.	ftz	1.5							150	225	
Asphalt Repave	ftz	2.5							150	375	
TPH - gas	Ea.	65	6	390	6	390					
TPH - Diesel	Ea.	65	6	390	6	390					
Total Lead	Ea.	40			1	40					
CAM 17	Ea.	200			1	200					
RCI	Ea.	180			1	180					
Markup	Ea.			225		180		3,187		330	
Task Subtotals			1,725		1,380		24,432			2,530	
Total Cost											35,727

After Tank Removal, Overexcavate and Dispose of 150 Yd3 of Petroleum Contaminated Soil												
Consulting Costs		Task 1		Task 2		Task 3		Task 4				
	unit	CPI 2013 Rate	#units	Cost	#units	Cost	#units	Cost	#units	Cost		
Project Manager	hr	139	4	554	2	277					139	
Staff	hr	99	12	1,188	8	792						
Technician	hr	79	10	792			10	792	12	950		
			2,534		1,069			792		1,089		
Equipment Rental/Supplies												
PID	day	132	1	132								
Fence w/Gate	Mo.	528	1	528								
Visqueen	roll	99	2	198								
Truck	mi.	0.7	100	66	100	66	100	66	200	132		
Misc. Supplies	day	33	1	33	1	33	1	33	2	66		
			Total	957		99		99		198		
Subcontractor												
Backhoe	day	950	1	950					2	1,901		
Loader	day	1267					1	1267				
18 yds Truck	hr	99					40	3,960				
Class 2 LF Fees	ton	86					225	19,305				
Soil Backfill	ton	16					200	3,168				
Gravel Backfill	ton	16					5	79				
Asphalt Saw	hr	66					4	264	4	264		
Asphalt Disp.	ftz	2.0							150	297		
Asphalt Repave	ftz	3.3							150	495		
TPH - gas	Ea.	86	6	515	6	515						
TPH - Diesel	Ea.	86	6	515	6	515						
Total Lead	Ea.	53			1	53						
CAM 17	Ea.	264			1	264						
RCI	Ea.	238			1	238						
Markup	Ea.			289		231		4,093		424		
Task Subtotals			Total	5,760	Total	2,983	Total	33,027	Total	3,381	Total	4,668
Total Cost											44,481	