

**Cost Guidelines
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NOTE: Costs and rates were updated using the United States Department of Labor, Bureau of Labor Statistics Consumer Price Index Inflation Calculator
http://www.bls.gov/data/inflation_calculator.htm

Typical Personnel Labor Rates			
Professional Staff Title/Classification	Billable Rate (\$/hr) 2001	2006	CPI 2013 Rate
Principal Engineer/Geologist	125	145	168
Project Manager	105	120	139
Senior Engineer/Geologist	105	120	139
Project/Associate Engineer/Geologist	90	105	122
Staff Engineer/Geologist	75	90	104
Senior Technician	70	80	93
Technician	60	70	81
Drafts Person	55	65	75
Clerical	45	55	64

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	1,980
	EPA Method 8015/8260	2,000/day	2,640
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	79
BTEX/MTBE	115	152
EPA Method 8260	200	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	3.5	5
	PVC Well Screen 0.010" & 0.020" (Up to 5' Lengths)	Per Foot	4.5	6
	PVC Well Screen 0.010" & 0.020" (Up to 10' Lengths)	Per Foot	3.5	5
	Threaded Cap (Top or Bottom)	Each	7.5	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	7.5	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)				
Sand				
	Monterey Sand	100 lb. Bag	8.5	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				CPI 2013 Rate		
Equipment (Small)	Daily	Weekly	Monthly	Daily	Weekly	Monthly
Air Compressor	85	315		112	416	
Concrete Coring/Cutting Equipment				0		
Coring Machine - 8" diameter (including bit)	75	250		99	330	
Concrete Saw	75	250		99	330	
Fence				Fence		
Chain link \$/100 ft		100	400	0	132	528
Field Instruments				Field Instruments		
Datalogger (2 channel)	65	325		86	429	
Photo-ionization Detector (PID)	100	350		132	462	
Flame Ionization Detector (FID)	150	500		198	660	
Water Level Indicator	25	85		33	112	
Oil/Water Interface Probe	40	125		53	165	
pH/Conductivity/Temperature Meter	40	125		53	165	
Dissolved Oxygen Meter	40	125		53	165	
Combustible Gas Meter (LEL/O ₂)	50	175		66	231	
Turbidity Meter	20	70		26	92	
Field Sampling Equipment				0		
Bailer (reusable teflon)	20			26		
Hand Auger	25	85		33	112	
Core Sampler & Hammer	5	20		7	26	
Equipment (Small)				Daily	Weekly	Monthly
Generators, gasoline/diesel powered				0		
Generator, 1-3 kW	40	150		53	198	
Generator, 5-6 kW	55	200		73	264	
Steam Cleaner	75	250		99	330	
Pumps				Pumps		
Gasoline Powered Pump 2" dia., 150 gpm	55	200		73	264	
Pump, Submersible, 10 gpm	45	150		59	198	
D.C. Purging Pump 3 gpm	15	50		20	66	
Skimmers/Separators/Hydrocarbon Recovery				Skimmers/Separators/Hydrocarbon/Recovery		
Passive Skimmer (1 liter)			15			20
Electric Skimmer			125			165
Filter Separator			100			132
Storage Tanks				Storage Tanks		
Storage Tanks, 1,000 gallon	12.5	85	325	17	112	429
Storage Tanks, 5,000 gallon	18.5	125	500	24	165	660
Storage Tanks, 21,000 gallon	30	210	840	40	277	1109
Rolloff Bin	19	95	350	25	125	462
Survey Equipment				Survey Equipment		
Level/transit, tripod, rod/prism, tape/chain	35	140		46	185	
Traffic Control Components				Traffic Control Components		
Barricades		5	20	0	7	26
Cones/Delineators (25 each)	8	35		11	46	

2001				
Equipment (Heavy)		Hourly	Daily	Weekly
	Backhoe (operated)	90	720	3,600.00
	Compactor (compaction wheel or vibraplate)		125	650
	Excavator (operated)	140	1,100	5,500.00
Loaders (operated)				
	Bob cat	75	600	3,000.00
	Loader	120	960	4,800.00
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	2,600.00
	Truck - 20 cubic yard (operated)	75	600	3,000.00
	Vacuum Truck (operated)	75	600	3,000.00

CPI 2013 Rate		
Hourly	Daily	Weekly
119	950	4,752
0	165	858
185	1452	7,260
Loaders (operated)		
99	792	3,960
158	1267	6,336
Trucks		
	\$0.565/mile	
	\$0.565/mile	
86	686	3,432
99	792	3,960
99	792	3,960

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					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	1,188
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	12	75	900	99	1,188
Drafts Person	Prepare site & sampling location maps	4	55	220	73	290
Clerical	Typing/reproduction/mailing	4	45	180	59	238
Total Cost				2,325.00	Total Costs	3,069

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				1,320.00	Total	1,742

Community Health and Safety Plan 2001						
2001					CPI 2013 Rate	
Personnel	Description of work	Units	Rate	Cost	Rate	Cost
Principal Engineer/Geologist	Review and signature	0.5	125	62.5	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				957.5	Total Costs	1,264

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	1,188
Total Labor				1,530.00	Total Labor	2,020
Equipment Rental/Supplies	Units					
Gas Monitor (PID)	day	1	100	100	132	132
Truck	day	1	60	60	0	0
Misc. Field Items	day	1	25	25	33	33
Total Equipment				185	Total Equipment	165
Subcontractor	Units					
Driller	feet	240	25	6,000.00	33	7,920
Analytical (EPA 8015)	each	8	65	520	86	686
Analytical (EPA 8260 w/oxygenates)	each	8	150	1,200.00	198	1,584
Markup		7,720	0.15	1,158.00	1019.0	10,190
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				1,560.00
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
Subcontractor	Units			
Analytical (EPA 8015)	each	6	65	390
Analytical (EPA 8260 w/oxygenates)	each	6	150	900
Markup		1,290	0.15	193.5
Total Subcontractor				1,483.50
Total Cost				3,333.50

CPI 2013 Rate	
Rate	Cost
139	277
99	990
79	792
Total Labor	2,059
Equipment Rental/Supplies	
132	132
0	0
40	40
99	99
33	33
Total Equipment	304
Subcontractor	
86	515
198	1,188
Subcontractor Total	1703
10% Markup	170
Total Subcontractor	1,873
Total Cost	4,236

Soil Boring Installation: Installation of three (3) borings to thirty (30) feet 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630
Staff Engineer/Geologist	Field prep./Permit/Fieldwork	12	75	900
Total Labor				1,530.00
Equipment Rental/Supplies	Units			
Gas Monitor (PID)	day	1	100	100
Truck	day	1	60	60
Drums	each	6	40	240
Soil Sampling Liners	each	15	6	90
Misc. Field Items	day	1	25	25
Total Equipment				515
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	90	18	1,620.00
Analytical (EPA 8015)	each	15	65	975
Analytical (EPA 8260 w/oxygenates)	each	15	150	2,250.00
Markup		5,245	0.15	786.75
Total Subcontractor				6,031.75
Total Cost				8,076.75

CPI 2013 Rate	
Rate	Cost
139	832
99	1,188
Total Labor	2,020
Equipment Rental/Supplies	
132	132
0	0
53	317
8	119
33	33
Total Equipment	601
Subcontractor	
132	528
24	2,138
86	1,287
198	2,970
Subcontractor Total	
	6,923
10% Markup	
	692
Total Subcontractor	7,616
Total Cost	10,236

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	2,250.00
Total Labor				3,300.00
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
Subcontractor		Units		
Driller Mobilization	hour	4	100	400
Driller	feet	300	18	5,400.00
Analytical (EPA 8015)	each	48	65	3,120.00
Analytical (EPA 8260 w/oxygenates)	each	48	150	7,200.00
Markup		16,120	0.15	2,418.00
Total Subcontractor				18,538.00
Total Cost				22,756.00

CPI 2013 Rate	
Rate	Cost
139	1,386
99	2,970
Total Labor	4,356
Equipment Rental/Supplies	
132	396
0	0
99	99
8	380
33	99
Total Equipment	974
Subcontractor	
132	528
24	7,128
86	4,118
198	9,504
Subcontractor Total	21,278
10% Markup	2,128
Subcontractor Cost	23,406
Total Cost	28,736

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				1,380.00
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
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		2,535	0.15	380.25
Total Subcontractor				2,915
Total Cost				4,555

CPI 2013 Rate	
Rate	Cost
139	832
99	990
Total Labor	1,822
Equipment Rental/Supplies	
132	132
0	0
99	99
33	33
Total Equipment	264
Subcontractor	
119	950
20	693
86	515
198	1,188
Subcontractor Total	3,346
10% Markup	335
Total Subcontractor	3,681
Total Cost	5,766

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				1,530.00
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	4,500.00
Analytical (EPA 8015)	each	9	65	585
Analytical (EPA 8260 w/oxygenates	each	9	150	1,350.00
Markup		6,835	0.15	1,025.25
Total Subcontractor				7,860.25
Total Cost				9,575.25

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	1,188
Total Labor	
	2,020
Equipment Rental/Supplies	
132	132
0	0
33	33
Total Equipment	
	165
Subcontractor	
132	528
33	5,940
86	772
198	1,782
Subcontractor Total	
	9,022
10% Markup	
	902
Total Subcontractor	
	9,924
Total Cost	
	12,109

Groundwater Well Installation: Installation of three (3)				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	6	105	630
Staff Engineer/Geologist	Field prep./Permit/Fieldwork	16	75	1,200.00
Total Labor				1,830.00
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
Subcontractor	Units			
Driller Mobilization	hour	4	100	400
Driller	feet	90	34	3,060.00
Analytical (EPA 8015)	each	15	65	975
Analytical (EPA 8260 w/oxygenates)	each	15	150	2,250.00
Markup		6,685	0.15	1,002.75
Total Subcontractor				7,687.75
Total Cost				9,942.75

CPI 2013 Rate	
Rate	Cost
139	832
99	1,584
Total Labor	2,416
Equipment Rental/Supplies	
132	132
0	0
53	317
33	33
Total Equipment	482
Subcontractor	
132	528
45	4,039
86	1,287
198	2,970
Subcontractor Total	8,824
10% Markup	882
Total Subcontractor	9,707
Total Cost	12,604

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	1,260.00
Staff Engineer/Geologist	Field prep./Permit/ Fieldwork	40	75	3,000.00
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	10,200.00
Analytical (EPA 8015)	each	36	65	2,340.00
Analytical (EPA 8260 w/oxygenates)	each	36	150	5,400.00
Markup		18,340	0.15	2,751.00
Total Subcontractor				21,091.00
Total Cost				26,166.00

CPI 2013 Rate	
Rate	Cost
139	1,663
99	3,960
Total Labor	5,623
Equipment Rental/Supplies	
132	528
0	0
99	99
33	132
Total Equipment	759
Subcontractor	
132	528
45	13,464
86	3,089
198	7,128
Subcontractor Total	24,209
10% Markup	2,421
Total Subcontractor	26,630
Total Cost	33,012

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	49.5
Markup		660	0.15	99
Total Subcontractor				379.50/759
Total Cost/3 wells at 30 feet				894.5
Total Cost/6 wells at 50 feet				1,574.00

* Only providing data for 3 wells

CPI 2013 Rate	
Rate	Cost
139	139
79	238
Total Labor	376
Equipment Rental/Supplies	
33	33
0	0
53	158
33	33
Total Equipment	224
Subcontractor	
145	436
	0
Subcontractor Total	436
10% Markup	44
Total Subcontractor	479
Total Cost	1,080

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				2,070.00
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
Total Subcontractor				529
Total Cost				3,369.00

CPI 2013 Rate	
Rate	Cost
139	277
99	1188
79	1267
Total Labor	2732
Equipment Rental/Supplies	
132	132
-	-
660	660
33	66
Total Equipment	858
Subcontractor	
152	607
10% Markup	60.72
Total Subcontractor	668
Total Cost	4,258

Pump Test (48 hour) 2001				
Personnel	Description of work	Units	Rate	Cost
Project Manager	Scheduling/Coordination	8	105	840
Project/Associate	Test coordination/ Data Analysis	24	90	2,160.00
Engineer/Geologist				
Technician	Set-up and run test/wastewater mgmt.	60	60	3,600.00
Total Labor				6,600.00
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				3,480.00
Total Cost				10,080.00

CPI 2013 Rate	
Rate	Cost
139	1,109
119	2,851
79	4,752
Total Labor	8,712
Equipment Rental/Supplies	
231	231
198	198
-	-
1,109	1,109
2,607	2,607
33	132
Total Equipment	4,277
Total Equipment	12,989

Free Product Removal: up to six (6) wells					CPI 2013 Rate	
Activity	Description of work	Units	Rate	Cost	Rate	Cost
Empty and record level in skimmer	Technician (hour)	4	60	240	79	317
	Oil/Water Interface Probe (day)	1	40	40	53	53
	Truck (day)	1	60	60	-	-
	Misc. Field Supplies	1	25	25	33	33
	Total (event)			365	Total (event)	403
Manual removal of free product	Technician (hour)	6	60	360	79	475
	Oil/Water Interface Probe (day)	1	40	40	53	53
	Bailer	1	20	20	26	26
	Misc. Field Supplies	1	25	25	33	33
	Truck (day)	1	60	60	-	-
	Total (event)			505	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
Subcontractor	Units			
Analytical (EPA 8015)	each	4	65	260
Analytical (EPA 8260 w/oxygenates)	each	4	150	600
Markup		860	0.15	129
Total Subcontractor				989
Total Cost				1,883

CPI 2013 Rate	
Rate	Cost
139	139
79	634
Total Labor	772
Equipment Rental/Supplies	
20	20
-	-
53	158
53	53
33	33
11	32
33	33
Total Equipment	329
Subcontractor	
86	343
198	792
Subcontractor Total	1,135
10% Markup	114
Subcontractor Total	1,249
Total Cost	2,350

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
Subcontractor	Units			
Analytical (EPA 8015)	each	7	65	455
Analytical (EPA 8260 w/oxygenates)	each	7	150	1,050.00
Markup		1,505	0.15	225.75
Total Subcontractor				1,730.75
Total Cost				3,743.75

CPI 2013 Rate	
Rate	Cost
139	277
99	990
79	792
Total Labor	2,059
Equipment Rental/Supplies	
20	20
0	0
53	317
53	53
33	33
11	63
33	33
Total Equipment	519
Subcontractor	
86	601
198	1,386
Subcontractor Total	1987
10% Markup	199
Subcontractor Total	2,185
Total Cost	4,763

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				
Drafts Person	Prepare report figures	4	55	220
Clerical	Typing/reproduction /mailing	4	45	180
Total Cost				1,790.00
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
-	-
99	792
73	290
59	238
Total Cost	2,363

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	Prepare report figures	4	55	220
Clerical	Typing/reproduction/ mailing	4	45	180
Total Cost				2,270.00

CPI 2013 Rate

Rate	Cost
165	330
119	950
-	-
99	1,188
73	290
59	238
Total Cost	2,996

Once an initial report is prepared for a site, the subsequent reports should take less effort to prepare.

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	
119	119
59	59
Total Cost	178

Site Assessment Report: six(6) borings to thirty (30) feet, three (3) converted to monitoring wells 2001					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	Data evaluation/conclusions &	8	105	840	139	1,109
	recommendations/review				0	-
Project/Associate	Regulatory liaison and report preparation	16	90	1,440.00	119	1,901
Engineer/Geologist					0	-
Staff Engineer/Geologist	Revise Site Conceptual Model/report preparation	16	75	1,200.00	99	1,584
Drafts Person	Prepare site & sampling location maps	8	55	440	73	581
Clerical	Typing/reproduction/mailing	8	45	360	59	475
Total Cost				4,780.00	Total Cost	6,310

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	1,260.00	139	1,663
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	20	90	1,800.00	119	2,376
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	20	75	1,500.00	99	1,980
Drafts Person	Prepare site & sampling location maps	12	55	660	73	871
Clerical	Typing/reproduction /mailing	8	45	360	59	475
Total Cost				6,080.00	Total Cost	8,026

Corrective Action Plan Preparation: Complicated site with extensive groundwater and soil contamination, difficult hydrogeology and multiple contaminants.					CPI 2013 Rate	
2001					Rate	Cost
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	1,260.00	139	1,663
Project/Associate Engineer/Geologist	Regulatory liaison, project management and plan preparation	32	90	2,880.00	119	3,802
Staff Engineer/Geologist	Revise Site Concept. Model/Plan prep.	32	75	2,400.00	-	-
Drafts Person	Prepare site & sampling location maps	16	55	880	99	3,168
Clerical	Typing/reproduction/mailing	12	45	540	73	1,162
Total Cost				8,710.00	Total Cost	11,497

Remedial Action Plan Preparation: Basic site with moderate groundwater and soil contamination						CPI 2013 Rate	
Remedial Action Plan Preparation: Basic site with moderate groundwater and soil contamination.						Rate	Cost
Personnel	Description of work	Units	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	1,109	
Project/Associate	Regulatory liaison, project management and plan preparation	12	90	1,080.00	119	1,426	
Engineer/Geologist							-
Staff Engineer/Geologist	Plan preparation	12	75	900	99	1,188	
Drafts Person	Prepare figures and design drawings	8	55	440	73	581	
Clerical	Typing/reproduction/mailing	8	45	360	59	475	
Total Cost				4,120.00		5,438	
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	1,680.00	139	2,218	
Project/Associate	Regulatory liaison, project management and plan preparation	24	90	2,160.00	119	2,851	
Engineer/Geologist							-
Staff Engineer/Geologist	Plan preparation	16	75	1,200.00	99	1,584	
Drafts Person	Prepare figures and design drawings	12	55	660	73	871	
Clerical	Typing/reproduction/mailing	8	45	360	59	475	
Total Cost				6,560.00		8,659	

Excavate and segregate overburden and contaminated soil 2001		CPI 2013
Activity	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				CPI 2013 Rate	
Labor	Units	Rate	Cost	Rate	Cost
Staff Engineer/Geologist	20	75	1,500.00	99	1,980
Total Labor Cost			1,500.00		1,926
Equipment Rental/Supplies					
Gas Monitor (PID)	2	100	200	132	264
Truck	120	0.5	60		0
Misc. Field Items	2	25	50	33	66
Total Equipment Cost			310		330
Analytical					
EPA 8015/8020	20	65	1,300.00	86	1,716
Markup	1,300	0.15	195	10% Markup	172
Total Analytical			1,495.00		1,888
Total Consultant Cost			3,305.00		4,144
Excavation Contractor Cost 2001				CPI 2013 Rate	
Activity	Units	Rate	Cost	Rate	Cost
Excavation	500	12	6,000.00	16	7,920
Backfill and Compaction	500	18	9,000.00	24	11,880
Total Contractor Cost			15,000.00		19,800

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	316
Technician (1/11/01)	Regular field maintenance/log	4	60	240	79	316
Technician (1/18/01)	Regular field maintenance/log	4	60	240	79	316
Technician 1/25/01)	Replace vacuum gauge/oil change/ Regular field maintenance/log	4	60	240	79	316
Equipment	Description				-	-
Truck (1/04/01)	Office to site/back	60	0.5	30	-	-
Truck (1/11/01)	Office to site/back	60	0.5	30	-	-
Truck (1/18/01)	Office to site/back	60	0.5	30	-	-
Truck 1/25/01)	Office to site/back	60	0.5	30	-	-
Total Consulting Costs				1,080.00	Total Consulting	1,264
Supplies					Supplies	
	Vacuum gauge, replace	1	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	66
Analytical					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 1,049	
Total Analytical Cost				914.25	10% Markup 105	
Total Cost/Month				2,044.03	Total Subcontractor	1,154
					Total Cost/Month	2,484

Operations and Maintenance Supplies		CPI 2013
Replacement Granular Activated Carbon (GAC) (Liquid Phase) per pound	1.5	2.0
Replacement Granular Activated Carbon (GAC) (Vapor Phase) per pound	1.5	2.0
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

Off-site Remediation 2001				CPI 2013
A	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
Off-site Disposal 2001				CPI 2013
B	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					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	Regulatory liaison, project management and report preparation	8	90	720	119	950
Engineer/Geologist					0	0
Staff Engineer/Geologist	Report preparation.	8	75	600	99	792
Drafts Person	Prepare report figures	4	55	220	73	290
Clerical	Typing/reproduction/ mailing	4	45	180	59	238
Total Cost				1,845.00	Total Cost	2435

2001		CPI 2013
A	Site Survey:	Cost/Event
	Site Survey (3 wells)	450
	Site Survey (6 wells)	700
B	Underground Utility Check:	Cost/Event
	USA Notification for three drilling points	75
	Electromagnetic scan for underground structures	600
C	Traffic Control:	Cost/Day
	Basic Traffic Control for closing one lane	350
	Extensive traffic control requiring multiple flagpersons and closure of lanes	950
		Cost/Event
		594
		924
		99
		792
		462
		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										
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			1	139
Staff	hr	99	12	1,188	8	792				
Technician	hr	79	10	792			10	792	12	950
			Total	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			5,760		2,983		32,136		4,668	
Total Cost										44,481