

Facility ID #421065

SG Interests - McIntyre Flowback Pits 1 & 2 Reclamation Estimate

Estimate of Probable Pit Closure Cost

Date: 9/28/12

By: WPM - Western Project Management



Cost Estimate Summary

Item	Description	Quantity	Unit	Direct Unit Cost	Direct Total Cost	Contingency (10%)	Subtotal	Payment & Performance Bonds (1.5%)	Subtotal	Contractor Overhead & Profit (15%)	Total
A.	Construction Contractor Costs										
1	Mobilization / Demobilization	2	Lump Sum	\$ 6,538.90	\$ 13,077.79	\$ 1,307.78	\$ 14,385.57	\$ 215.78	\$ 14,601.35	\$ 2,190.20	\$ 16,791.56
2	Soil Sampling for Contamination	15	Locations	\$ 288.63	\$ 4,329.50	\$ 432.95	\$ 4,762.45	\$ 71.44	\$ 4,833.89	\$ 725.08	\$ 5,558.97
3	Surface Water Sampling for Contamination - 8 samples	14	Samples	\$ 280.26	\$ 3,923.60	\$ 392.36	\$ 4,315.96	\$ 64.74	\$ 4,380.70	\$ 657.10	\$ 5,037.80
4	Monitoring well Abandonment	5	Wells	\$ 392.50	\$ 1,962.50	\$ 196.25	\$ 2,158.75	\$ 32.38	\$ 2,191.13	\$ 328.67	\$ 2,519.80
5	Disposal of Pond Fluids (Assumed to be non-hazardous)	3,299,479	Gallons	\$0.002	\$ 7,944.79	\$ 794.48	\$ 8,739.27	\$ 131.09	\$ 8,870.36	\$ 1,330.55	\$ 10,200.91
6	Remove & Dispose of Operating Equipment	40	Hours	\$ 543.12	\$ 21,724.80	\$ 2,172.48	\$ 23,897.28	\$ 358.46	\$ 24,255.74	\$ 3,638.36	\$ 27,894.10
7	Remove & Dispose of Pond Liners	189,000.00	Square feet	\$0.096	\$ 18,089.59	\$ 1,808.96	\$ 19,898.55	\$ 298.48	\$ 20,197.03	\$ 3,029.55	\$ 23,226.59
8	Backfill, Compact, & Restore Site	33,289.31	Cubic yards	\$ 2.99	\$ 99,692.83	\$ 9,969.28	\$ 109,662.11	\$ 1,644.93	\$ 111,307.04	\$ 16,696.06	\$ 128,003.10
9	Site Management Costs	5	Weeks	\$ 14,580.14	\$ 72,900.69	\$ 7,290.07	\$ 80,190.76	\$ 1,202.86	\$ 81,393.62	\$ 12,209.04	\$ 93,602.66
	Subtotal Construction				\$ 243,646.09	\$ 24,364.61	\$ 268,010.70	\$ 4,020.16	\$ 272,030.86	\$ 40,804.63	\$ 312,835.49
B.	Administrative and Engineering Costs										
1	Construction Management Fee (5% of Construction)										\$ 15,641.77
2	Work plans, Engineering Design, and Bid Documents (15% of Construction)										\$ 46,925.32
Grand Total											\$ 375,402.59

Mobilization / Demobilization					
Summary	Description	Quantity	Unit	Unit Price	Total
	Transportation to the jobsite - Crew	8	hrs	\$ 173.94	\$ 1,391.50
	Transportation to the jobsite - Equip.	8	hrs	\$ 427.86	\$ 3,422.89
	Jobsite Trailer set-up/removal	0	ea	\$ 750.00	\$ -
	Sanitation Facilities	3	ea	\$ 75.00	\$ 225.00
	Crew Jobsite Set-up	8	hrs	\$ 173.94	\$ 1,391.50
	Work Truck - Crew Cab	8	hrs	\$ 13.50	\$ 108.00
	Mobilization/Demobilization Unit Rate				\$ 6,538.90

Crew Rate					
		Quantity	Unit	Unit Price	Total
	Laborer - Common	2	ea	\$ 27.79	\$ 55.57
	Truck Driver	1	ea	\$ 34.43	\$ 34.43
	Equipment Operator - Level 2	1	ea	\$ 33.56	\$ 33.56
	Equipment Operator - Level 3	1	ea	\$ 50.37	\$ 50.37
					\$ 173.94
Equipment Rate					
	Work Truck - Crew Cab	2	ea	\$ 13.50	\$ 27.00
	Flatbed Truck, Trailer, & Driver	2	ea	\$ 90.43	\$ 180.86
	Flatbed Truck, Trailer, & Driver	2	ea	\$ 110.00	\$ 220.00
					\$ 427.86

	Distance	Unit	Speed (mph)	Time
Load up time				2.5
Denver to Exit 116 (I-70)	158	mi	55	2.9
Exit 116 through Carbondale (Hwy 82 & 113)	58	mi	30	1.9
Local roads to Jobsite	4	mi	15	0.3
	<u>220</u>	<u>mi</u>		<u>7.6</u>
Round to the nearest full day				8 hrs

Soil Sampling for Contamination -		15 Locations			
Labor					
		Quantity	Unit	Unit Price	Total
	Soils Technician	40	hrs	\$ 55.00	\$ 2,200.00
					\$ 2,200.00
Equipment					
	Hand Auger - for testing at perimeter of pit	5	days	\$ 85.00	\$ 425.00
					\$ 425.00
Expenses					
	Transportation (90 mi. r/t from Grand Junction)	450	mi	\$ 0.51	\$ 229.50
	Misc. supplies (gloves, cleaners, containers etc.)	1	ls	\$ 200.00	\$ 200.00
					\$ 429.50
Laboratory Cost					
	BTEX (8015B)	15	ea	\$ 60.00	\$ 900.00
	Chlorides	15	ea	\$ 25.00	\$ 375.00
					\$ 1,275.00
	Soil Testing:				\$ 4,329.50
	Cost per locations				\$ 288.63

Assumptions:

- A technician is needed for 5 days at the beginning of the reclamation.

Surface and Ground Water Well Testing for Contamination - 14 samples (5 - wells, 3 domestic, 6 seeps/springs)					
Labor					
	Quantity	Unit	Unit Price		Total
Soils Technician	40	hrs	\$ 55.00	\$	2,200.00
				\$	2,200.00
Expenses					
Transportation (90 mi. r/t from Grand Junction)	360	mi	\$ 0.51	\$	183.60
Misc. supplies and shipping of samples	1	ls	\$ 350.00	\$	350.00
				\$	533.60
Laboratory Cost					
BTEX (8015B)	14	ea	\$ 60.00	\$	840.00
Chlorides	14	ea	\$ 25.00	\$	350.00
				\$	1,190.00
Water Testing:				\$	3,923.60
Cost per locations				\$	280.26

Assumptions:

- A technician is needed for 5 days at the beginning of the reclamation.

Monitoring well abandonment		5 Wells			
Mobilization & Demobilization from Grand Junction (4 hrs each way)					
	Quantity	Unit	Unit Price		Total
Transportation (90 mi. r/t from Grand Junction)	180	mi	\$	0.51	\$ 91.80
Soils Technician	8	hrs	\$	55.00	\$ 440.00
Abandonment					
Abandonment of monitoring well (5 x 50' wells)	250	ft	\$	7.85	\$ 1,962.50
					\$ 1,962.50
Total cost:					\$ 1,962.50
Cost per locations					\$ 392.50

-Rates taken from the OPS EPS 2009

Remove & Dispose of Operating Equipment

Crew Rate				
	Qty.	Unit	Rate	Total
Electrician	1	ea	\$ 55.83	\$ 55.83
Ironworker	1	ea	\$ 53.08	\$ 53.08
Laborer - Common	4	ea	\$ 27.79	\$ 111.15
Equipment Operator - Level 2	2	ea	\$ 33.56	\$ 67.13
				<u>\$ 287.19</u>
Equipment & Fee Rates (Quantities are by the hour)				
	Qty.	Unit	Rate	Total
Work Truck - Crew Cab	1	ea	\$ 13.50	\$ 13.50
Reach Fork	1	ea	\$ 30.00	\$ 30.00
Backhoe -446B	1	ea	\$ 47.00	\$ 47.00
Dump Truck & Driver	1	ea	\$ 90.43	\$ 90.43
Disposal (40 Tons estimated with an average of 1 Ton removed per hour)	1	ea	\$ 75.00	\$ 75.00
				<u>\$ 255.93</u>
Hourly Rate				<u>\$ 543.12</u>
Daily Rate				\$ 4,344.96
Weekly Rate				<u>\$ 21,724.80</u>

Assumptions:

- All metal items such as fencing & tanks will be recycled.
- Disposal of 40 tons includes (pipes, culverts, bird netting, concrete post cases, equipment, etc.).

Remove & Dispose of Poly-Pipe System (alternate removal for approximately 1 mile)				
Crew Rate				
	Qty.	Unit	Rate	Total
Laborer - Common	2	ea	\$ 27.79	\$ 55.57
Equipment Operator - Level 2	1	ea	\$ 33.56	\$ 33.56
				<u>\$ 89.14</u>
Equipment & Fee Rates				
	Qty.	Unit	Rate	Total
Work Truck - Crew Cab	1	ea	\$ 13.50	\$ 13.50
Reach Fork	1	ea	\$ 30.00	\$ 30.00
Flatbed Truck, Trailer, & Driver	1	ea	\$ 90.43	\$ 90.43
				<u>\$ 133.93</u>
				<u>\$ 223.07</u>
Hourly Rate				\$ 1,784.56
Daily Rate				\$ 7,138.24
Estimated 4 days of removal needed:				\$ 990.00
Disposal (13 Tons estimated) (5 lbs/lf of material)	13.2	ea	\$ 75.00	\$ 8,128.24
				\$ 812.82
Contingency	10.0%			\$ 134.12
Bonds	1.5%			\$ 1,815.04
Contractor OH&P	20.0%			<u>\$ 10,890.21</u>

Disposal of Pond Fluids (Assumed to be non-hazardous)

Assumed water elevation in the pit (ft)	N/A
Volume of pit fluid at elevation (bbl)	78,559
Volume in gallons (factored)	3,299,478
% of total pond volume (pits 3 & 4 combined)	100.0%

This was 50% on McIntyre 3 & 4. The volumes are so much smaller, I put it up to 100%
 Also, I took the total pit volume - not the usable. Usable = 61224 bbls

Description	Qty.	Unit	Trips	Time	Unit	Time	Unit	Rate	Total
Pump fluid into wells through existing polypipe system (97% of factored volume)	3,200,494	gallons		0	wk	3	days	\$ 675.33	\$ 2,025.99
Fuel for Pumps	1	ls				1	ls	\$ 2,000.00	\$ 2,000.00
Pump, fill, and dispose of pit fluid at treatment plant (3% of factored volume)	98,984	gallons	18	18	hrs	2	days	\$ 2,393.46	\$ 5,423.87
Total Gallons removed	3,299,479	gallons	330						
Disposal at municipal facility fee (\$5/1000 gallons)	98,984	gallons						0.005	\$ 494.92
Total cost estimated to remove all fluids									\$ 7,944.79
Cost per gallon to dispose of fluids (\$/gallon)									\$ 0.0024

Crew Rate - For pit fluid returned to local wells via existing polypipe system.

Laborer - Common	1	ea	\$ 26.82	\$ 26.82
Laborer - Foreman	1	ea	\$ 30.60	\$ 30.60
				\$ 57.42
Equipment & Fee Rates				
Work Truck - Crew Cab	2	ea	\$ 13.50	\$ 27.00
				\$ 27.00
Hourly Rate				\$ 84.42
Daily Rate				\$ 675.33

Crew Rate (2 trucks) - Disposal at a municipal facility

	Qty.	Unit	Rate	Total
Laborer - Common	1	ea	\$ 26.82	\$ 26.82
Truck Driver	2	ea	\$ 34.43	\$ 68.86
				Subtotal \$ 95.68
Equipment & Fee Rates				
Water Truck - 130 barrel vac. Truck	2	ea	\$ 95.00	\$ 190.00
Work Truck - Crew Cab	1	ea	\$ 13.50	\$ 13.50
				Subtotal \$ 203.50
				Total Hourly Rate \$ 299.18
				Daily Rate \$ 2,393.46

Estimate Cycle Time

Fill Water Truck	6 minutes
(1 minute hook-up/disconnect + 7 min fill)	
Travel time to disposal facility	50 minutes
Empty Water Truck at Well or facility	20 minutes
Return to Pit	39 minutes
Avg. down time for items such as fuel	5 minutes
Total Cycle time per truck	120 minutes

Remove & Dispose of Pond Liners							
Description	Qty.	Unit	Production	Unit	Days	Unit Cost	Total
Cut and remove liner	189,000.00	sf	69,540	sf/day	2.7	\$ 3,516.87	\$ 9,558.36
(2) Flatbed Truck, Trailer, & Driver	30	hrs	2	trips/day	2.5	\$ 180.86	\$ 3,617.23
Disposal*	65.5	tons				\$ 75.00	\$ 4,914.00
Subtotal							\$ 18,089.59
Unit Price (Remove & Dispose per sf)							\$ 0.0957

Liner Demolition & Loading

* Assumes 0.3 lbs/sf for the membranes, 1.0 lbs/sf for the Geonet and a 30% increase amount in contaminant (such as sludge or clay) waste.

Crew Rate (4 cut & roll crews)				
	Qty.	Unit	Rate	Total
Laborer - Common	12	ea	\$ 27.79	\$ 333.45
Laborer - Foreman	1	ea	\$ 30.60	\$ 30.60
Equipment Operator - Level 2	1	ea	\$ 33.56	\$ 33.56

Equipment & Fee Rates

Reach Fork	1	ea	\$ 30.00	\$ 30.00
Compressor, hose, & tools	4	ea	\$ 3.00	\$ 12.00
Subtotal				<u>\$ 439.61</u>
Daily Rate (8hrs)				<u>\$ 3,516.87</u>

Liner Cutting	
3 Laborer to cut, 6 to roll, 1 to assist with load & 1 Equip. Operator to operate the Backhoe or Reach Fork	
Liner (per layer with 3 layers)	63000 sf (36 mil liner is recognized as slightly smaller)
Length of Liner (square root of area)	251 lf
LF of cutting per liner	2899.05 lf
Cutting rate per hour (4 crews)	400 lf/hr
Cutting time per liner	7.247625 hrs
Removal rate per hour (sf/hr)	8693 (Assumes 205' of a 20' wide roll per hour)
Number of liners per pond	3
Total hours for all liners	21.74
Total weeks for the removal	0.5

Disposal Sites				
Pitkin County Landfill	59	mi		
Delta County Landfill	60	mi		
Montrose County Landfill	82	mi		
Worst Case (Montrose)	82	mi		

	Distance	Unit	Speed (mph)	Time
Site to Hwy 133	4	mi	15	0.3
Hwy 133 & 92 to State Hwy 50	55	mi	30	1.8
Hwy 50 to Disposal Facility	23	mi	50	0.5
	<u>82</u>	mi		<u>2.6</u>
Round to the nearest full hour to include unload time				3 hrs
Round Trip				6 hrs
Total Trips to dispose of liner waste (66 tons)				4.37 trips
Round up to the next whole total trip value				5 trips

Backfill, Compact Site, & Restore Site								
Description	Qty.	Unit	Production	Unit	Days	Unit Cost	Cost	
Rip Clay Layer	8	hrs	225,000	sf	1	\$ 256.06	\$	2,048.51
Push Soil (Dozer Crew 150ft max)*	6562.80	cy	1,598	cy/day	4.1	\$ 2,270.81	\$	9,324.50
Haul, and Place Stockpiled Soil	26251.20	cy	4,464	cy/day	5.9	\$ 4,525.88	\$	26,615.11
Spread Soils and Compact**	33289.31	cy	3,000	cy/day	11.1	\$ 3,375.98	\$	37,461.30
Finish work (20.5 Acres)	4.50	Acres				\$ 1,500.00	\$	6,750.00
Disc, Seed & Mulch	4.50	Acres			2.0	\$ 1,000.00	\$	4,500.00
Post Closure Weed Control (2 days of spraying)	1.00	ls				\$ 8,000.00	\$	8,000.00
Compaction Tests (6 per day)	67	tests				\$ 75.00	\$	4,993.40
Subtotal - Backfill & Compaction							\$	99,692.83
Unit Price (Backfill & Compact per cubic yard)							\$	2.99

Bulldozer Crew - (2 Dozers)				
Crew Rate	Qty.	Unit	Rate	Total
Laborer - Common	1	ea	\$ 27.79	\$ 27.79
Equipment Operator - Level 2	1	ea	\$ 33.56	\$ 33.56
Equipment & Fee Rates				
Bulldozer (D8T)	1	ea	\$ 222.50	\$ 222.50
Subtotal				\$ 283.85
Daily Rate (8hrs)				\$ 2,270.81

Original Site Volumes	
Fill Volume	0 cy
Cut Volume	32,814.00 cy
Class 6 road base***	475.31 cy
Type L Riprap (Drain Rock) - (Clear water ditch w/rock check dams)	21.10 cy
	33,289.31 cy

Scraper Crew - (4 scrapers)				
Crew Rate	Qty.	Unit	Rate	Total
Laborer - Common	1	ea	\$ 27.79	\$ 27.79
Equipment Operator - Level 3	2	ea	\$ 50.37	\$ 100.74
Equipment & Fee Rates				
Scraper (627G)	2	ea	\$ 232.50	\$ 465.00
Subtotal				\$ 565.74
Daily Rate (8hrs)				\$ 4,525.88

Crew Rate (Spread & Compact)				
	Qty.	Unit	Rate	Total
Truck Driver	1	ea	\$ 25.37	\$ 25.37
Equipment Operator - Level 2	2	ea	\$ 33.56	\$ 67.13
Equipment & Fee Rates				
Water Truck - 2500 gallon (1,250 gals/hr usage)	1	ea	\$ 67.50	\$ 67.50
Bulldozer (D8T)	1	ea	\$ 162.00	\$ 162.00
Compactor, Vibratory (815F)	1	ea	\$ 100.00	\$ 100.00
Subtotal				\$ 422.00
Daily Rate (8hrs)				\$ 3,375.98

* It is assumed that approx. 20% of all soil volumes can be moved with the dozer.

**6 in lift with (3 passes per lift), @ 1,000 cy/hr w/6 hrs per day = 3000 cy/day (for 1 crew)

*** Road base and Type L Riprap to be mixed in with soils and compacted.

Site Management Costs							
	Time	Unit	Duration	Unit	Rate	Total	
Staff							
Site Superintendent	5	wks	200	hrs	\$ 65.00	\$ 13,000.00	
Project Manager	3	wks	120	hrs	\$ 75.00	\$ 9,000.00	
Equipment Operator - Level 3	1	wks	40	hrs	\$ 50.37	\$ 2,014.71	
Laborer - Common	4	wks	160	hrs	\$ 27.79	\$ 4,445.98	
Equipment							
Office Trailer	0	mos			\$ 300.00	\$ -	
Portable Toilets	1.5	mos			\$ 200.00	\$ 300.00	
Water Truck (40 x 2,500 tanks)	3	wks			\$ 3,400.00	\$ 10,200.00	
Grader or Bulldozer with road blade	1	wks			\$ 3,140.00	\$ 3,140.00	
Work Truck - Crew Cab	5	wks			\$ 540.00	\$ 2,700.00	
Field Expenses							
Office Supplies	1	mos			200	\$ 200.00	
Utilities (Water, Electric, Phones)	1.5	mos			600	\$ 900.00	
Erosion Control materials	1	ls			8000	\$ 8,000.00	
Subcontractor Costs							
Civil Engineer (site visits)	10	ea			\$ 1,000.00	\$ 10,000.00	
Surveyor	1	ls			\$ 5,000.00	\$ 5,000.00	
Geotechnical Fees	1	ls			\$ 4,000.00	\$ 4,000.00	
						\$ 72,900.69	
Weekly Rate						\$ 14,580.14	

Labor Rates										
Labor Group		Rate	Fringe	Subtotal	Basic Payroll Tax (10.73%)	Worker's Comp. Ins. (13%)	Subtotal	Liability Ins. (1.5%)	Per diem	Total
Electrician		\$ 28.00	\$ 9.24	\$ 37.24	\$ 4.00	\$ 4.84	\$ 46.08	\$ 0.69	\$ 9.06	\$ 55.83
Ironworker		\$ 24.58	\$ 10.47	\$ 35.05	\$ 3.76	\$ 4.56	\$ 43.37	\$ 0.65	\$ 9.06	\$ 53.08
Laborer - Common		\$ 11.11	\$ 3.80	\$ 14.91	\$ 1.60	\$ 1.94	\$ 18.45	\$ 0.28	\$ 9.06	\$ 27.79
Laborer - Foreman	Foreman (Add 15% to Common)	\$ 12.78	\$ 4.37	\$ 17.15	\$ 1.84	\$ 2.23	\$ 21.22	\$ 0.32	\$ 9.06	\$ 30.60
Truck Driver	Semi & Water	\$ 14.93	\$ 5.27	\$ 20.20	\$ 2.17	\$ 2.63	\$ 24.99	\$ 0.37	\$ 9.06	\$ 34.43
Equipment Operator - Level 2	Bulldozer, Backhoe & Reach Fork	\$ 15.93	\$ 3.58	\$ 19.51	\$ 2.09	\$ 2.54	\$ 24.14	\$ 0.36	\$ 9.06	\$ 33.56
Equipment Operator - Level 3	Excavator & Scraper	\$ 23.67	\$ 9.22	\$ 32.89	\$ 3.53	\$ 4.28	\$ 40.69	\$ 0.61	\$ 9.06	\$ 50.37

Rates taken from the Davis Bacon Wage Decision Number:

CO120013 01/13/2012 for GUNNISON County, Colorado.
 CO120012 01/06/2012 for MESA County, Colorado.

Per diem
\$ 75.00 hotel \$ 35.00 man/day

Facility ID #421065

SG Interests - McIntyre Flowback Pits 1 & 2 Reclamation Estimate

Estimate of Probable Pit Closure Cost - Schedule

Schedule of work	total hrs estimated	wk1	wk2	wk3	wk4	wk5
Mobilization	16					
Demo	32					
Fluids	40					
Liners	24					
Dirt	122					
Demobilization	16					