

Facility ID #418790

SG Interests - McIntyre Flowback Pits 3 & 4 Reclamation Estimate

Estimate of Probable Pit Closure Cost

Date: 9/28/2012

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
<b>A.</b>	<b>Construction Contractor Costs</b>										
1	Mobilization / Demobilization	2	Lump Sum	\$ 15,286.90	\$ 30,573.81	\$ 3,057.38	\$ 33,631.19	\$ 504.47	\$ 34,135.65	\$ 5,120.35	\$ 39,256.00
2	Soil Sampling for Contamination	25	Locations	\$ 261.65	\$ 6,541.30	\$ 654.13	\$ 7,195.43	\$ 107.93	\$ 7,303.36	\$ 1,095.50	\$ 8,398.87
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)	6,033,720	Gallons	\$0.002	\$ 14,991.16	\$ 1,499.12	\$ 16,490.27	\$ 247.35	\$ 16,737.63	\$ 2,510.64	\$ 19,248.27
6	Remove & Dispose of Operating Equipment	40	Hours	\$ 671.05	\$ 26,842.04	\$ 2,684.20	\$ 29,526.24	\$ 442.89	\$ 29,969.13	\$ 4,495.37	\$ 34,464.50
7	Remove & Dispose of Pond Liners	586,530.00	Square feet	\$0.095	\$ 55,769.65	\$ 5,576.97	\$ 61,346.62	\$ 920.20	\$ 62,266.82	\$ 9,340.02	\$ 71,606.84
8	Backfill, Compact, & Restore Site	169,241.00	Cubic yards	\$ 2.46	\$ 416,445.75	\$ 41,644.57	\$ 458,090.32	\$ 6,871.35	\$ 464,961.68	\$ 69,744.25	\$ 534,705.93
9	Site Management Costs	12	Weeks	\$ 12,108.54	\$ 145,302.51	\$ 14,530.25	\$ 159,832.76	\$ 2,397.49	\$ 162,230.25	\$ 24,334.54	\$ 186,564.79
	<b>Subtotal Construction</b>				\$ 702,352.31	\$ 70,235.23	\$ 772,587.54	\$ 11,588.81	\$ 784,176.36	\$ 117,626.45	\$ 901,802.81
<b>B.</b>	<b>Administrative and Engineering Costs</b>										
1	Construction Management Fee (5% of Construction)										\$ 45,090.14
2	Work plans, Engineering Design, and Bid Documents (15% of Construction)										\$ 135,270.42
<b>Grand Total</b>											<b>\$ 1,082,163.37</b>

<b>Mobilization / Demobilization</b>					
<b>Summary</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total</b>
	Transportation to the jobsite - Crew	8	hrs	\$ 341.23	\$ 2,729.85
	Transportation to the jobsite - Equip.	8	hrs	\$ 738.29	\$ 5,906.34
	Jobsite Trailer set-up/removal	1	ea	\$ 750.00	\$ 750.00
	Sanitation Facilities	3	ea	\$ 75.00	\$ 225.00
	Crew Jobsite Set-up	16	hrs	\$ 341.23	\$ 5,459.71
	Work Truck - Crew Cab	16	hrs	\$ 13.50	\$ 216.00
	Mobilization/Demobilization Unit Rate				<b>\$ 15,286.90</b>

<b>Crew Rate</b>					
		<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total</b>
	Laborer - Common	5	ea	\$ 27.79	\$ 138.94
	Truck Driver	1	ea	\$ 34.43	\$ 34.43
	Equipment Operator - Level 2	2	ea	\$ 33.56	\$ 67.13
	Equipment Operator - Level 3	2	ea	\$ 50.37	\$ 100.74
					\$ 341.23
<b>Equipment Rate</b>					
	Work Truck - Crew Cab	2	ea	\$ 13.50	\$ 27.00
	Flatbed Truck, Trailer, & Driver	3	ea	\$ 90.43	\$ 271.29
	Flatbed Truck, Trailer, & Driver	4	ea	\$ 110.00	\$ 440.00
					\$ 738.29

	<b>Distance</b>	<b>Unit</b>	<b>Speed (mph)</b>	<b>Time</b>
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

<b>Soil Sampling for Contamination -</b>		<b>25 Locations</b>			
<b>Labor</b>					
		Quantity	Unit	Unit Price	Total
	Soils Technician	60	hrs	\$ 55.00	\$ 3,300.00
					\$ 3,300.00
<b>Equipment</b>					
	Hand Auger - for testing at perimeter of pit	7	days	\$ 85.00	\$ 595.00
					\$ 595.00
<b>Expenses</b>					
	Transportation (90 mi. r/t from Grand Junction)	630	mi	\$ 0.51	\$ 321.30
	Misc. supplies (gloves, cleaners, containers etc.)	1	ls	\$ 200.00	\$ 200.00
					\$ 521.30
<b>Laboratory Cost</b>					
	BTEX (8015B)	25	ea	\$ 60.00	\$ 1,500.00
	Chlorides	25	ea	\$ 25.00	\$ 625.00
					\$ 2,125.00
	<b>Soil Testing:</b>				<b>\$ 6,541.30</b>
	<b>Cost per locations</b>				<b>\$ 261.65</b>

**Assumptions:**

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

<b>Surface and Ground Water Well Testing for Contamination - 14 samples (5 - wells, 3 domestic, 6 seeps/springs)</b>					
Labor					
	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>		<b>Total</b>
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
<b>Water Testing:</b>				<b>\$</b>	<b>3,923.60</b>
Cost per locations				\$	280.26

Assumptions:

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

<b>Monitoring well abandonment</b>		<b>5 Wells</b>			
Mobilization & Demobilization from Grand Junction (4 hrs each way)					
	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>		<b>Total</b>
Transportation (90 mi. r/t from Grand Junction)	180	mi	\$	0.51	\$ 91.80
Soils Technician	8	hrs	\$	55.00	\$ 440.00
<b>Abandonment</b>					
Abandonment of monitoring well (5 x 50' wells)	250	ft	\$	7.85	\$ 1,962.50
					\$ 1,962.50
<b>Total cost:</b>					<b>\$ 1,962.50</b>
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	2	ea	\$ 90.43	\$ 180.86
Disposal (60 Tons estimated with an average of 1.5 Tons removed per hour)	1.5	ea	\$ 75.00	\$ 112.50
				<u>\$ 383.86</u>
Hourly Rate				<u>\$ 671.05</u>
Daily Rate				\$ 5,368.41
Weekly Rate				<u><b>\$ 26,842.04</b></u>

Assumptions:

- All metal items such as fencing & tanks will be recycled.
- Disposal of 60 tons includes (pipes, culverts, bird netting, concrete post cases, dried/clean sludge, etc.).

Remove & Dispose of Poly-Pipe System (alternate)				
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				\$ 223.07
Daily Rate				\$ 1,784.56
Estimated 3 days of removal needed:				\$ 5,353.68
Disposal (10 Tons estimated)	9.9	ea	\$ 75.00	\$ 742.50
				\$ 6,096.18
Contingency	10.0%			\$ 609.62
Bonds	1.5%			\$ 100.59
Contractor OH&P	20.0%			\$ 1,361.28
				<u><u>\$ 8,167.66</u></u>

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

Assumed water elevation in the pit (ft)	7,344
Volume of pit fluid at elevation (bbl)	143,660
Volume in gallons (factored)	6,033,720
% of total pond volume (pits 3 & 4 combined)	50.0%

Description	Qty.	Unit	Trips	Time	Unit	Time	Unit	Rate	Total
Pump fluid into wells through existing polypipe system (97% of factored volume)	5,852,708	gallons		1	wk	5	days	\$ 833.50	\$ 4,167.52
Pump, fill, and dispose of pit fluid at treatment plant (3% of factored volume)	181,012	gallons	33	33	hrs	4	days	\$ 2,393.46	\$ 9,918.58
<b>Total Gallons removed</b>	<b>6,033,720</b>	<b>gallons</b>	<b>603</b>						
Disposal at municipal facility fee (\$5/1000 gallons)	181,012	gallons						0.005	\$ 905.06
<b>Total cost estimated to remove all fluids</b>									<b>\$ 14,991.16</b>
Cost per gallon to dispose of fluids (\$/gallon)									\$ 0.0025

**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	\$ 50.37	\$ 50.37
<b>Subtotal</b>			<b>\$ 77.19</b>	
<b>Equipment &amp; Fee Rates</b>				
Work Truck - Crew Cab	2	ea	\$ 13.50	\$ 27.00
<b>Subtotal</b>			<b>\$ 27.00</b>	
<b>Hourly Rate</b>			<b>Total Hourly Rate</b>	<b>\$ 104.19</b>
<b>Daily Rate</b>			<b>\$ 833.50</b>	

**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
<b>Subtotal</b>			<b>\$ 95.68</b>	
<b>Equipment &amp; Fee Rates</b>				
Water Truck - 130 barrel vac. Truck	2	ea	\$ 95.00	\$ 190.00
Work Truck - Crew Cab	1	ea	\$ 13.50	\$ 13.50
<b>Subtotal</b>			<b>\$ 203.50</b>	
<b>Hourly Rate</b>			<b>Total Hourly Rate</b>	<b>\$ 299.18</b>
<b>Daily Rate</b>			<b>\$ 2,393.46</b>	

**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
<b>Total Cycle time per truck</b>	<b>120 minutes</b>

<b>Remove &amp; Dispose of Pond Liners</b>							
Description	Qty.	Unit	Production	Unit	Days	Unit Cost	Total
Cut and remove liner	586,530.00	sf	67,161	sf/day	8.7	\$ 3,516.87	\$ 30,713.29
(2) Flatbed Truck, Trailer, & Driver	81	hrs	2	trips/day	6.8	\$ 180.86	\$ 9,806.58
Disposal*	203.3	tons				\$ 75.00	\$ 15,249.78
Subtotal							<b>\$ 55,769.65</b>
Unit Price (Remove & Dispose per sf)							<b>\$ 0.0951</b>

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.

<b>Crew Rate (4 cut &amp; roll crews)</b>				
	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>

<b>Liner Cutting</b>	
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)	192128 sf (36 mil liner is recognized as slightly smaller)
Length of Liner (square root of area)	438 lf
LF of cutting per liner	9154.2 lf
Cutting rate per hour (4 crews)	400 lf/hr
Cutting time per liner	22.8855 hrs
Removal rate per hour (sf/hr)	8395 (Assumes 205' of a 20' wide roll per hour)
Number of liners per pond	3
Total hours for all liners	68.66
Total weeks for the removal	1.7

<b>Disposal Sites</b>				
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 (203 tons)				14 trips

Backfill, Compact Site, & Restore Site								
Description	Qty.	Unit	Production	Unit	Days	Unit Cost	Cost	
Rip Clay Layer	40	hrs	225,000	sf	1	\$ 512.13	\$	20,485.15
Push Soil (Dozer Crew 150ft max)*	33848.20	cy	3,197	cy/day	10.6	\$ 4,319.33	\$	45,737.95
Haul, and Place Stockpiled Soil	135392.80	cy	8,928	cy/day	15.2	\$ 9,051.77	\$	137,269.72
Spread Soils and Compact**	169241.00	cy	6,000	cy/day	28.2	\$ 6,009.01	\$	169,495.01
Finish work (20.5 Acres)	20.50	Acres				\$ 1,500.00	\$	30,750.00
Disc, Seed & Mulch	20.50	Acres			3.0	\$ 1,000.00	\$	20,500.00
Compaction Tests (6 per day)	169	tests				\$ 75.00	\$	12,693.08
Subtotal - Backfill & Compaction							\$	<b>416,445.75</b>
Unit Price (Backfill & Compact per cubic yard)							\$	2.46

Bulldozer Crew - (2 Dozers)				
Crew Rate	Qty.	Unit	Rate	Total
Laborer - Common	1	ea	\$ 27.79	\$ 27.79
Equipment Operator - Level 2	2	ea	\$ 33.56	\$ 67.13
<b>Equipment &amp; Fee Rates</b>				
Bulldozer (D8T)	2	ea	\$ 222.50	\$ 445.00
Subtotal				\$ 539.92
Daily Rate (8hrs)				\$ 4,319.33

Original Site Volumes	
Fill Volume	0 cy
Cut Volume	169,241.00 cy
Class 6 road base***	293.21 cy
Type L Riprap - (Clear water ditch w/rock check dams)	1,100.00 cy
	<b>169,534.21 cy</b>

Scraper Crew - (4 scrapers)				
Crew Rate	Qty.	Unit	Rate	Total
Laborer - Common	1	ea	\$ 27.79	\$ 27.79
Equipment Operator - Level 3	4	ea	\$ 50.37	\$ 201.47
<b>Equipment &amp; Fee Rates</b>				
Scraper (627G)	4	ea	\$ 232.50	\$ 930.00
Subtotal				\$ 1,131.47
Daily Rate (8hrs)				\$ 9,051.77

Crew Rate (Spread & Compact)				
	Qty.	Unit	Rate	Total
Truck Driver	1	ea	\$ 25.37	\$ 25.37
Equipment Operator - Level 2	4	ea	\$ 33.56	\$ 134.26
<b>Equipment &amp; Fee Rates</b>				
Water Truck - 2500 gallon (1,250 gals/hr usage)	1	ea	\$ 67.50	\$ 67.50
Bulldozer (D8T)	2	ea	\$ 162.00	\$ 324.00
Compactor, Vibratory (815F)	2	ea	\$ 100.00	\$ 200.00
Subtotal				\$ 751.13
Daily Rate (8hrs)				\$ 6,009.01

\* 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 = 6000 cy/day (for 2 crews)  
 \*\*\* Road base and Type L Riprap to be mixed in with soils and compacted.

<b>Site Management Costs</b>							
	Time	Unit	Duration	Unit	Rate	Total	
<b>Staff</b>							
Site Superintendent	12	wks	480	hrs	\$ 65.00	\$ 31,200.00	
Project Manager	4	wks	160	hrs	\$ 75.00	\$ 12,000.00	
Equipment Operator - Level 3	5	wks	200	hrs	\$ 50.37	\$ 10,073.54	
Laborer - Common	6	wks	240	hrs	\$ 27.79	\$ 6,668.97	
<b>Equipment</b>							
Office Trailer	3	mos			\$ 300.00	\$ 900.00	
Portable Toilets	3	mos			\$ 200.00	\$ 600.00	
Water Truck (40 x 2,500 tanks)	3	wks			\$ 3,400.00	\$ 10,200.00	
Grader or Bulldozer with road blade	2	wks			\$ 3,140.00	\$ 6,280.00	
Work Truck - Crew Cab	12	wks			\$ 540.00	\$ 6,480.00	
<b>Field Expenses</b>							
Office Supplies	3	mos			200	\$ 600.00	
Utilities (Water, Electric, Phones)	3	mos			600	\$ 1,800.00	
Erosion Control materials	1	ls			12500	\$ 12,500.00	
<b>Subcontractor Costs</b>							
Civil Engineer (site visits)	30	ea			\$ 1,000.00	\$ 30,000.00	
Surveyor	1	ls			\$ 10,000.00	\$ 10,000.00	
Geotechnical Fees	1	ls			\$ 6,000.00	\$ 6,000.00	
						<b>\$ 145,302.51</b>	
Weekly Rate						<b>\$ 12,108.54</b>	

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 #418790**

**SG Interests - McIntyre Flowback Pits 3 & 4 Reclamation Estimate**

**Estimate of Probable Pit Closure Cost - Schedule**

Schedule of work	total hrs estimated	wk1	wk2	wk3	wk4	wk5	wk6	wk7	wk8	wk9	wk10	wk11	wk12
Mobilization	40												
Demo	40												
Fluids	56												
Liners	70												
Dirt	320												
Demobilization	40												