



**6 NYCRR PART 373  
MODIFICATION REQUEST TO  
SITEWIDE PART 373 PERMIT  
PERMIT ID 9-2934-00022/00097**

**PERMIT REFERENCE DOCUMENTS**

**CWM CHEMICAL SERVICES, LLC.  
MODEL CITY FACILITY**

**August 2013  
(Revised November/December 2013)**

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1550 Balmer Road  
Model City New York, 14107*

**SITEWIDE PERMIT REFERENCE DOCUMENTS**  
**DEVELOPMENT OF RESIDUALS MANAGEMENT UNIT NO. 2**

- “Site-Wide and RMU-1 Closure Cost Estimates”, revised and new estimates attached
  - 2.01 New Drum Management Building
  - 4.01 Stabilization Area (Revised)
  - 5.32 AWTS (Fac Pond 5 w/1 tk)
  - 6.01 Fac Ponds ( 3& 1-2)
  - 6.02 Fac Ponds (3 & 1-2 & New Fac 5)
  - 6.03 Fac Ponds (1-2 & New Fac 5)
  - 8.01 CSA New Full Trailer Parking (5 tankers)
- “Process & Instrumentation Diagrams (PIDs) for Tank Systems”, revised portions attached
  - Sheet 3 – RMU-1 Lift Station with RMU-2 Cell 20 (dated 5/23/13). Replaces Sheet 3 (dated 3/20/12)
  - Sheet 9A – SLF-12/RMU-1 Oil Water Separator (RMU-2 Final Buildout, dated 5/23/13). Sheet 9A will replace Sheet 9 (dated 4/24/12) in currently approved P&ID package upon construction of future cells of RMU-2.
- “Aqueous Waste Treatment System Operations and Maintenance (O&M) Manual”, revised portions attached
  - Figure 1.1(a) – AWTS Flow Chart. Replaces Figure 1.1 of the currently approved AWTS O&M Manual, dated September 2013 upon construction of Cell 20.
  - Figure 1.1(b) – AWTS Flow Chart. Replaces Figure 1.1(a) of the AWTS O&M Manual upon construction of Cell 17 of RMU-2, closure and demolition of tank T-160 and RMU-1 Lift Station Building, and installation of new leachate transfer forcemains from RMU-1 and RMU-2.
- “Groundwater Sampling and Analysis Plan (GWSAP)”, entire revised plan attached
- “RMU-2 Closure Cost Estimate”, new estimates
  - 15.01 Residuals Management Unit - 2 (1 cell)
  - 15.02 Residuals Management Unit - 2 (2 cells)
  - 15.03 Residuals Management Unit - 2 (3 cells)
  - 15.04 Residuals Management Unit - 2 (4 cells)
  - 15.05 Residuals Management Unit - 2 (5 cells)
  - 15.06 Residuals Management Unit - 2 (6 cells)

**ITIEWIDE PERMIT REFERENCE DOCUMENTS**  
**DEVELOPMENT OF RESIDUALS MANAGEMENT UNIT NO. 2**  
(cont.)

- “RMU-2 Post-Closure Cost Estimate”, new estimates
  - PCC-9.01 Residuals Management Unit 2 (Post Cl - 1 Cell)
  - PCC-9.02 Residuals Management Unit 2 (Post Cl - 2 Cells)
  - PCC-9.03 Residuals Management Unit 2 (Post Cl - 3 Cells)
  - PCC-9.04 Residuals Management Unit 2 (Post Cl - 4 Cells)
  - PCC-9.05 Residuals Management Unit (Post Cl - 5 Cells)
  - PCC-9.06 Residuals Management Unit 2 (Post Cl - 6 Cells)
- RMU-2 Engineering Report - Part 373 Permit Application, “RMU-2 Engineering Report” (November 2013)
- “RMU-2 Soil Excavation Monitoring and Management Plan and RMU-2 Corrective Action Plan”, November 8, 2013
- "RMU-1 to RMU-2 Transition Plan", November 8, 2013

**SITEWIDE AND RMU-2 CLOSURE AND POST CLOSURE  
COST ESTIMATES**

**Table 1**  
**Summary of Proposed Financial Assurance**  
**Residuals Management Unit No. 2 Development**  
**CWM Chemical Services, LLC**  
**Model City Facility**  
**Model City, New York**

**Closure Cost Estimate Summary**

No.	Facility Activity Area	Proposed Total Cost: Base = 2010 Offsite Waste Disposal	Deflated Basic Option Total Cost: 2012	Notes
2.01	New Drum Management Building	\$981,858	\$1,018,634	Replaces 2.0 when existing DMB closed
4.01	Stabilization Area (Revised)	\$1,155,461	\$1,198,741	Replaces 4.0 when trailer parking closed and new trailer parking built
5.32	AWTS (Fac Pond 5 w/1 tk)	\$3,752	\$3,892	New
6.01	Fac Ponds ( 3& 1-2)	\$9,236,773	\$9,582,749	Replaces 6.0 Upon FP 8 completely closed
6.02	Fac Ponds (3 & 1-2 & New Fac 5)	\$9,515,813	\$9,872,241	Replaces 6.01 Upon Construction of FP 5
6.03	Fac Ponds (1-2 & New Fac 5)	\$2,514,451	\$2,608,633	Replaces 6.02 when Fac Pond 3 closed
8.01	CSA New Full Trail Parking (5 tankers)	\$507,926	\$526,952	Replaces 8.0 when South Trailer Parking Closed & New Parking Constructed
15.01	Residuals Management Unit - 2 (1 cell)	\$4,810,069	\$4,990,237	Financial Assurance Upon Construction of Cell 20
15.02	Residuals Management Unit - 2 (2 cells)	\$10,330,917	\$10,717,876	Replaces 15.01 Upon Construction of Cell 18
15.03	Residuals Management Unit - 2 (3 cells)	\$11,505,630	\$11,936,590	Replaces 15.02 Upon Construction of Cell 19
15.04	Residuals Management Unit - 2 (4 cells)	\$12,439,038	\$12,904,959	Replaces 15.03 Upon Construction of Cell 17
15.05	Residuals Management Unit - 2 (5 cells)	\$15,203,934	\$15,773,418	Replaces 15.04 Upon Construction of Cell 16
15.06	Residuals Management Unit - 2 (6 cells)	\$15,928,417	\$16,525,039	Replaces 15.05 Upon Construction of Cell 15

**Post-Closure Cost Estimate Summary**

No.	Facility Activity Area	30-Year Post Closure Costs				Perpetual Care Costs				Notes
		Proposed Post-Closure One Year Cost: Base = 2010	Est'd One Year Cost: Base 2012	Post Closure Period	Proposed 30-Year Post Closure Costs	Perpetual Care Annual Costs Base = 2010	Perpetual Care Est'd One Year Cost: Base 2012	Approved Perpetual Care Discount Rate	Perpetual Care Monitoring Costs Base = 2012	
PCC-9.01	Resid Mgmt Unit 2 (Post CI - 1 Cell)	\$30,781	\$31,933	30	\$958,003	\$25,661	\$26,623	3.85%	\$691,494	Financial Assurance Upon Construction of Cell 20
PCC-9.02	Resid Mgmt Unit 2 (Post CI - 2 Cells)	\$49,836	\$51,703	30	\$1,551,083	\$38,091	\$39,518	3.85%	\$1,026,438	Replaces PCC-9.01 Upon Construction of Cell 18
PCC-9.03	Resid Mgmt Unit 2 (Post CI - 3 Cells)	\$67,913	\$70,457	30	\$2,113,698	\$55,712	\$57,799	3.85%	\$1,501,267	Replaces PCC-9.02 Upon Construction of Cell 19
PCC-9.04	Resid Mgmt Unit 2 (Post CI - 4 Cells)	\$78,636	\$81,581	30	\$2,447,439	\$66,015	\$68,487	3.85%	\$1,778,896	Replaces PCC-9.03 Upon Construction of Cell 17
PCC-9.05	Resid Mgmt Unit 2 (Post CI - 5 Cells)	\$95,396	\$98,969	30	\$2,969,064	\$82,312	\$85,395	3.85%	\$2,218,045	Replaces PCC-9.04 Upon Construction of Cell 16
PCC-9.06	Resid Mgmt Unit 2 (Post CI - 6 Cells)	\$127,652	\$132,433	30	\$3,972,994	\$109,501	\$113,602	3.85%	\$2,950,710	Replaces PCC-9.05 Upon Construction of Cell 15

Notes: The proposed amount for Post-Closure Care shall be the greater of the 30 year Post-Closure Cost Estimate and the Perpetual Care Cost Estimate.

The US Department of Commerce - Bureau of Economic Analysis updated the National Income and Product Accounts Table 1.1.9. Implicit Price Deflators for Gross Domestic Product on November 1, 2013 for the year 2010-2012. An implicit deflator and an adjustment for inflation has been applied to the cost estimate.  
<http://www.bea.gov/>

**Implicit Price Deflators for Gross Domestic Product**

<b>2012 Rate =</b>	<b>105.002 (2012 GDP) ÷</b>	<b>101.211 (2010 GDP) =</b>	<b>1.03746</b>
	2012	105.002	
	2011	103.199	
	2010	101.211	

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.0 Inventory Verification</b>						production rate = two persons req'd @ average of two drums/minute/crew with a 10-min break/hour	
Laborer	40.9	hours	\$39.00	\$1,595	\$1,595	4,088 drums @ 100 drums/hr = 40.9 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification				<b>\$1,595</b>	<b>\$1,595</b>		
<i>Subt: Assemblies 2.01.1)</i>				<b>\$1,595</b>	<b>\$1,595</b>	<i>survey and inventory of maximum capacity of Drum Management Building</i>	
<b>2.01.2 Load Solids Drms for O/S L'Fill</b>						production rate = 80 drums/hour/person; Facility experience	
Laborer	76.8	hours	\$39.00	\$2,995	\$2,995	3068 drums @ 80 drums/hr = 38.4 hours @ 2 units/crew = 76.8 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	38.4	hours	\$22.21	\$853	\$853	3068 drums @ 80 drums/hr = 38.4 hours @ 1 units/crew = 38.4 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	38.4	hours	\$6.26	\$240	\$240	3068 drums @ 80 drums/hr = 38.4 hours @ 1 units/crew = 38.4 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load Drums for Onsite L'Fill				<b>\$4,088</b>	<b>\$4,088</b>		
<b>2.01.3 Trans Solids Drms to O/S L'Fill</b>						assumes on-site disposal	
Road Tractor (4 x 2, 30-ton)	19.2	hours	\$32.45	\$0	\$623	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	19.2	hours	\$45.00	\$0	\$864	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Flatbed Trailer (40-ton)	19.2	hours	\$6.26	\$0	\$120	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Transp Drms to Onsite L'Fill				<b>\$0</b>	<b>\$1,607</b>		
<b>2.01.4 Unload Sol Drums at O/S L'Fill</b>						assumes on-site disposal	
Laborer	19.2	hours	\$39.00	\$0	\$749	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	19.2	hours	\$22.21	\$0	\$426	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	19.2	hours	\$6.26	\$0	\$120	3068 drums @ 80 drums/load = 38.4 loads @ 0.5 hr/load = 19.2 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unload Drms at Onsite L'Fill				<b>\$0</b>	<b>\$1,295</b>		
<b>2.01.5 Offsite Disp - Solids Drums</b>						assumes off-site land disposal; 80 drms/load; Fac est assumes on-site disposal	
Offsite Transportation	14784	miles	\$3.50	\$51,744	\$0	3068 drums @ 80 drums/ld = 38.4 loads @ 385 miles/trip = 14,784 miles	Rate: transporters quote/site experience
Offsite Disposal - Landfill	3068	drums	\$100.00	\$306,800	\$0	3068 drums	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Disp - Solids Drums				<b>\$358,544</b>	<b>\$0</b>		
<i>(Subt: Assemblies 2.01.2 thru 2.01.5)</i>				<b>\$362,632</b>	<b>\$6,991</b>	<i>loading, off-site transporting, and off-site disposal of drummed solids</i>	
<b>2.01.6 Load Drums for O/S Aque Trt</b>						production rate = 80 drums/hour; facility experience	
Laborer	10.2	hours	\$39.00	\$398	\$398	410 drums @ 80 drums/hr = 5.1 hours @ 2 units/crew = 10.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	5.1	hours	\$22.21	\$113	\$113	410 drums @ 80 drums/hr = 5.1 hours @ 1 units/crew = 5.1 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	5.1	hours	\$6.26	\$32	\$32	410 drums @ 80 drums/hr = 5.1 hours @ 1 units/crew = 5.1 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load Drms for Onsite Aq/Tr				<b>\$543</b>	<b>\$543</b>		
<b>2.01.7 Transp to O/S Aqueous Treat</b>						production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	2.6	hours	\$32.45	\$84	\$84	410 drums @ 80 drum/load = 5.1 loads @ = 0.5 hours/trip = 2.6 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	2.6	hours	\$45.00	\$117	\$117	410 drums @ 80 drum/load = 5.1 loads @ = 0.5 hours/trip = 2.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Flatbed Trailer (40-ton)	2.6	hours	\$6.26	\$16	\$16	410 drums @ 80 drum/load = 5.1 loads @ = 0.5 hours/trip = 2.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Transp to Onsite Aque Treat				<b>\$218</b>	<b>\$218</b>		

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.8 Unload/Empty Drms:O/S AqTrt</b>						production rate = 80 drm/hr; facility experience	
Laborer	10.2	hours	\$39.00	\$398	\$398	410 drums @ 80 drums/hr = 5.1 hours @ 2 units/crew = 10.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	5.1	hours	\$22.21	\$113	\$113	410 drums @ 80 drums/hr = 5.1 hours @ 1 units/crew = 5.1 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	5.1	hours	\$6.26	\$32	\$32	410 drums @ 80 drums/hr = 5.1 hours @ 1 units/crew = 5.1 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unl/Emp Drms: O/S Aqu Trt				<b>\$543</b>	<b>\$543</b>		
<b>2.01.9 Onsite Aqueous Treatment</b>							
Onsite Aqueous Treatment	22550	gal	\$0.1526	\$3,441	\$3,441	410 drums @ 55 gal/drum = 22,550 gallons	On-site treatment costs: other (gate receipts) wastewater source
Subt - Onsite Aqueous Treatment				<b>\$3,441</b>	<b>\$3,441</b>		
<i>(Subt: Assemblies 2.01.6 thru 2.01.9)</i>				<b>\$4,745</b>	<b>\$4,745</b>	<i>loading, onsite transporting, unloading, and onsite disposal of drummed liquids</i>	
<b>2.01.10 Load Org Liq Drms for Bulking</b>						production rate = 80 drums/hour; facility experience	
Laborer	12.2	hours	\$39.00	\$476	\$476	490 drums @ 80 drums/hr = 6.1 hours @ 2 units/crew = 12.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	6.1	hours	\$22.21	\$135	\$135	490 drums @ 80 drums/hr = 6.1 hours @ 1 units/crew = 6.1 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton) not req'd	0	hours	\$6.26	\$0	\$0	0 drums @ 80 drums/hr = 0.0 hours @ 1 units/crew = 0.0 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load Org Liq Drms - Bulking				<b>\$611</b>	<b>\$611</b>		
<b>2.01.11 Onsite Transportation</b>						onsite bulking performed at Drum Management Building by forklift; no transportation costs incurred	
N/A	0	hours	\$0.00	\$0	\$0	0 drums @ 80 drum/load = 0.0 loads @ 0.5 hours/trip = 0.0 hours	drums moved solely by forklift at Drum Mgmt Bldg
Subt - Onsite Transportation				<b>\$0</b>	<b>\$0</b>		
<b>2.01.12 Unload Org Liq Drms/Bulking</b>						production rate = 80 drums/hour; facility experience	
Laborer	12.2	hours	\$39.00	\$476	\$476	490 drums @ 80 drums/hr = 6.1 hours @ 2 units/crew = 12.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	6.1	hours	\$22.21	\$135	\$135	490 drums @ 80 drums/hr = 6.1 hours @ 1 units/crew = 6.1 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton) not req'd	0	hours	\$6.26	\$0	\$0	0 drums @ 80 drums/hr = 0.0 hours @ 1 units/crew = 0.0 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unload Org Liq Drms/Bulking				<b>\$611</b>	<b>\$611</b>		
<b>2.01.13 Bulk Org Liquids into Tankers</b>						prod'n rate = 5 min/drum; employs a 2-person crew + equipment	
Laborer	81.6	hours	\$39.00	\$3,182	\$3,182	490 drums @ 12 drums/hr = 40.8 hours @ 2 units/crew = 81.6 hours	two laborers; rate 2011 3rd party quote
Pumping Equipment	40.8	hours	\$71.47	\$2,916	\$2,916	490 drums @ 12 drums/hr = 40.8 hours @ 1 units/crew = 40.8 hours	RSM/UP p. 9-171 (line item 33-19-0108)
Tank Trailer - 5,500 Gallons	40.8	hours	\$6.31	\$257	\$257	490 drums @ 12 drums/hr = 40.8 hours @ 1 units/crew = 40.8 hours	RSM/HC p. 472 (line item 01 54 33 40 6900)
Subt - Bulk Org Liq into Tankers				<b>\$6,356</b>	<b>\$6,356</b>		
<i>(Subt: Assemblies 2.01.10 thru 2.01.13)</i>				<b>\$7,578</b>	<b>\$7,578</b>	<i>loading, onsite transporting, and bulking drummed organic liquids</i>	

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.14 Transp Org Liquids Offsite</b>						capacity per 5,500-gal tanker = one hundred (100) 55-gal drums	
Transport in 5,500-gal Tankers	7492	miles	\$3.50	\$26,222	\$26,222	490 drums @ 100 drm/tankr = 4.9 loads @ 1529 miles/trip = 7,492 miles	Rate: transporters quote/site experience
Subt - Transp Org Liquids Offsite				<b>\$26,222</b>	<b>\$26,222</b>		
<b>2.01.15 Transp Ramp Liquids Offsite</b>						two standing 5,500-gal tankers parked at West ramp = 11,000 gallons	
Transport two 5,500 Gal Tankers	3058	miles	\$3.50	\$10,703	\$10,703	11000 gals @ 5500 gal/tankr = 2.0 loads @ 1529 miles/trip = 3058.0 miles	Rate: transporters quote/site experience
Subt - Transp Org Liquids Offsite				<b>\$10,703</b>	<b>\$10,703</b>		
<b>2.01.16 Offsite Org Liquids Disposal</b>						offsite incineration of non-PCB liquids	
Disposal Cost - Liquids (558 drums)	26950	gallons	\$3.15	\$84,893	\$84,893	490 drums @ 55 gal/drum = 26950 gallons	HWC/ETC 2004 & Current third party rate
Disposal Cost - Liquids (2 Tankers)	11000	gallons	\$3.15	\$34,650	\$34,650	2.0 tankr @ 5500 gal/tankr = 11000 gallons	HWC/ETC 2004 & Current third party rate
Subt - Offsite Org Liq Disposal				<b>\$119,543</b>	<b>\$119,543</b>		
(Subt: Assemblies 2.01.14 thru 2.01.16)				<b>\$156,468</b>	<b>\$156,468</b>	offsite T&D of liquids	
<b>2.01.17 Incinerables From Transf. Rm. Empty Transformers</b>						prod'n rate = 1,650 gals/hr; RSM/UP p. 9-171 (33-19-0101); 6 transformers @ 344.2 gals each	2,065 gal. from Transformer Flush Area
Laborer	2.6	hours	\$39.00	\$101	\$101	2,065 gals @ 1650 gals/hr = 1.3 hours @ 2 units/crew = 2.6 hours	two laborers; rate 2011 3rd party quote
Pumping Equipment	1.3	hours	\$71.47	\$93	\$93	2,065 gals @ 1650 gals/hr = 1.3 hours @ 1 units/crew = 1.3 hours	RSM/UP p. 9-171 (line item 33-19-0108)
Tank Trailer - 5,000 Gals	1.3	hours	\$6.31	\$8	\$8	2,065 gals @ 1650 gals/hr = 1.3 hours @ 1 units/crew = 1.3 hours	T&D rate below includes tanker
Subt - Empty Transformers				<b>\$203</b>	<b>\$203</b>		
<b>2.01.18 Transp Transformer Liqs Offsite</b>						capacity per tanker = 5 000 gallons capacity per tanker = 5,000 gallons	
Transport in 5,000 Gal Tanker	1529	miles	\$3.50	\$5,352	\$5,352	2,065 gals @ 5000 gal/tankr = 0.4 loads (↑1.0)@ 1529 miles/load = 1529.0 miles	Rate: transporters quote/site experience
Subt - Transp't Transformer Liquids				<b>\$5,352</b>	<b>\$5,352</b>		
<b>2.01.19 Dispose of Transformer Liquids</b>						liquid PCB wastes	
Disposal Cost - PCB Liquids	2065	gallons	\$4.68	\$9,664	\$9,664	2,065 gallons	HWC/ETC 2004 & Current third party rate
Subt - Transformer O/S Liq Dispos'l				<b>\$9,664</b>	<b>\$9,664</b>		
(Subt: Assemblies 3.2 thru 3.4)				<b>\$15,218</b>	<b>\$15,218</b>	empty transformers and T&D PCB liquids	
<b>2.01.20 Load Empty Drums</b>						production rate = 160 drums/hour (double the rate of full drums)	
Laborer	11.2	hours	\$39.00	\$437	\$437	900 drums @ 160 drums/hr = 5.6 hours @ 2 units/crew = 11.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	5.6	hours	\$22.21	\$124	\$124	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	5.6	hours	\$6.26	\$35	\$35	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load Empty Drums				<b>\$596</b>	<b>\$596</b>	Loaded for on-site shredding & offsite disposal or for onsite disposal	
<b>2.01.21 Transp Drums to Onsite Shrd</b>						production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	5.7	hours	\$32.45	\$185	\$0	900 drums @ 80 drum/load = 11.3 loads @ 0.5 hours/trip = 5.7 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	5.7	hours	\$45.00	\$257	\$0	900 drums @ 80 drum/load = 11.3 loads @ 0.5 hours/trip = 5.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Flatbed Trailer (40-ton)	5.7	hours	\$6.26	\$36	\$0	900 drums @ 80 drum/load = 11.3 loads @ 0.5 hours/trip = 5.7 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Transp to Onsite Shredder				<b>\$477</b>	<b>\$0</b>		

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.22 Unload Empty Drums</b>						production rate = 160 drums/hour (double the rate of full drums)	
Laborer	11.2	hours	\$39.00	\$437	\$0	900 drums @ 160 drums/hr = 5.6 hours @ 2 units/crew = 11.2 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	5.6	hours	\$22.21	\$124	\$0	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	5.6	hours	\$6.26	\$35	\$0	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unload Empty Drums				<b>\$596</b>	<b>\$0</b>		
<b>2.01.23 Onsite Drum Shredding</b>						prod'n = 80 drums/hour; debris shredded into rolloff	
Laborer	22.6	hours	\$39.00	\$881	\$0	900 drums @ 80 drums/hr = 11.3 hours @ 2 units/crew = 22.6 hours	one shredder oper + one helper; rate 2011 3rd party quote
Shredder	11.3	hours	\$329.70	\$3,726	\$0	900 drums @ 80 drums/hr = 11.3 hours @ 1 units/crew = 11.3 hours	2004 DEC Rate * Implicit Deflator
Rolloff (30-CY)	11.3	hours	\$19.02	\$215	\$0	900 drums @ 80 drums/hr = 11.3 hours @ 1 units/crew = 11.3 hours	dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Onsite Drum Shredding				<b>\$4,822</b>	<b>\$0</b>		
<b>2.01.24 Transp Drms: onsite L'fill</b>						Transport whole drums to onsite landfill for disposal: production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	5.6	hours	\$32.45	\$0	\$182	900 drums @ 80 drums/load = 11.3 loads @ 0.5 hours/trip = 5.6 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	5.6	hours	\$45.00	\$0	\$252	900 drums @ 80 drums/load = 11.3 loads @ 0.5 hours/trip = 5.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Flatbed Trailer (40-ton)	5.6	hours	\$6.26	\$0	\$35	900 drums @ 80 drums/load = 11.3 loads @ 0.5 hours/trip = 5.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Transp Mat'l to Landfill				<b>\$0</b>	<b>\$469</b>	Drums crushed in landfill	
<b>2.01.25 Unload Empty Drum</b>						prod'n rate = 160 drums/hour (assume double the rate of full drums @ site experience)	
Laborer	5.6	hours	\$39.00	\$0	\$218	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	one loader oper + one helper; rate 2011 3rd party quote
Loader (medium)	5.6	hours	\$14.39	\$0	\$81	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4610)
Flatbed Trailer (40-ton)	5.6	hours	\$6.26	\$0	\$35	900 drums @ 160 drums/hr = 5.6 hours @ 1 units/crew = 5.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unload Epty Drum at Landfill				<b>\$0</b>	<b>\$334</b>	Drums crushed in landfill	
<b>2.01.26 Offsite Disp/Shrd'd Drums</b>						assumes off-site land disposal of shredded drums; 20 tons/load	
Offsite Transportation	5.0	miles	\$3.25	\$16	\$0	9 tons @ 20 tons/load = 0.5 (↑1) loads @ 5 miles/trip = 5.0 miles	Rate: transporters quote/site experience
Offsite Disposal - Non-Haz Landfill	10.3	tons	\$35.00	\$361	\$0	900 drums @ 20 lbs/drum = 9 tons @ 1 tons/CY = 9 tons	Modern Disposal/Site Experience
Subt - Offsite Shrd'd Drums Disp'l				<b>\$377</b>	<b>\$0</b>		
(Subt: Assemblies 2.01.20 thru 2.01.26)				<b>\$6,868</b>	<b>\$1,399</b>	onsite drum shredding and off-site non-haz disposal	
<b>2.01.27 Load Spec Treat for O/S T&amp;D</b>						production rate = 40 drums/hour; site experience	
Laborer	6	hours	\$39.00	\$234	\$234	120 drums @ 40 drums/hr = 3.0 hours @ 2 pers/crew = 6.0 hours	one forklift oper + one helper; rate 2011 3rd party quote
Forklift	3	hours	\$22.21	\$67	\$67	120 drums @ 40 drums/hr = 3.0 hours @ 1 units/crew = 3.0 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Dump Trailer (22 ton)	3	hours	\$5.20	\$16	\$16	120 drums @ 40 drums/hr = 3.0 hours @ 1 units/crew = 3.0 hours	RSM/HC p. 469 (line item 01 54 33 20 5400)
Subt - Load Spec Trt for O/S T&D				<b>\$316</b>	<b>\$316</b>		
<b>2.01.28 Transport Spec Trt Offsite</b>						Estimate based on a per drum basis for special treatment waste: max 120 drums	
Truck Transport @ 88 drums/load	0	miles	\$0.00	\$0	\$0		
Transport per drum	120	drum	\$50.00	\$6,000	\$6,000	Facility estimate based on per drum rate	rate = site experience
Subt - Transport Spec Trt Offsite				<b>\$6,000</b>	<b>\$6,000</b>		

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.29 Offsite Spec Trt Disposal</b>						disposal price of \$500/drum	
Disposal Cost (Misc Drums)	120	drum	\$500.00	\$60,000	\$60,000	120 drums	site estimate of \$500/drum for unknown wastes
Subt - Offsite Spec Trt Disposal				<b>\$60,000</b>	<b>\$60,000</b>		
<i>(Subt: Assemblies 2.01.27 thru 2.01.29)</i>				<b>\$66,316</b>	<b>\$66,316</b>	<i>offsite T&amp;D of drums requiring special treatment</i>	
<b>2.01.30 Decon Drm Mgmt Bldg (wash)</b>						production rate = 105 SF/hr for 1-person crew w/ one unit each; facility experience	47,557 = Areas 1-9 + fuels pump area & Bladder tank area
Laborer	452.9	hours	\$39.00	\$17,663	\$17,663	47,557 SF @ 105 SF/hr = 452.9 hours @ 1 pers/crew = 452.9 hours	two laborers-1 unit each; rate 2011 3rd party quote
Pressure Washer		hours	\$4.04	\$0	\$0	Vacuum-Pressure Wash Combo Used	RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper		hours	\$3.41	\$0	\$0	not required	RSM/HC p. 473 (line item 01 54 33 40 7800)
Vacuum-Pressure Wash Combo	452.9	hours	\$22.94	\$10,390	\$10,390	47,557 SF @ 105 SF/hr = 452.9 hours @ 1 units/crew = 452.9 hours	2001 Rate * Implicit Deflator
Subt - Decon Drm Mgt Bldg (Wash)				<b>\$28,053</b>	<b>\$28,053</b>		
<b>2.01.31 Decon Drum Mgt Bldg (Rinse)</b>						production rate = 105 SF/hr for 1-person crew w/ one unit; facility experience	
Laborer	905.8	hours	\$39.00	\$35,326	\$35,326	47,557 SF @ 105 SF/hr = 452.9 hours @ 2 pers/crew = 905.8 hours	two laborers-1 unit each; rate 2011 3rd party quote
Pressure Washer		hours	\$4.04	\$0	\$0	Vacuum-Pressure Wash Combo Used	RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper		hours	\$3.41	\$0	\$0	not required	RSM/HC p. 473 (line item 01 54 33 40 7800)
Vacuum-Pressure Wash Combo	452.9	hours	\$22.94	\$10,390	\$10,390	47,557 SF @ 105 SF/hr = 452.9 hours @ 1 units/crew = 452.9 hours	2001 Rate * Implicit Deflator
Subt - Decon Drm Mgt Bldg (Rinse)				<b>\$45,716</b>	<b>\$45,716</b>		
<b>2.01.32 Decon Water Samp/Dispose</b>						production rate = 0.5 hours/sample for two techs; DEC treatment unit price = \$0.1042/gallon	
Technician	8.0	hours	\$38.00	\$304	\$304	8 samp @ 0.5 hr/samp = 4 hours @ 2 pers/crew = 8 hours	rate 2011 3rd party quote
VOC Analysis (EPA 624)	8.0	samp	\$105.00	\$840	\$840	8 samples	analytical price: average of three quotes
On-site Water Disposal	4,755.80	gal	\$0.0313	\$149	\$149	47,557 SF @ 0.05 gal/sf/wa = 2,377.9 gal 0.05 gal/sf/rinse = 2,377.9 gals	site waters waste treat price ; vol @ 0.05 gal/sf (equip lit)
Subt - Decon Water Samp/Dispose				<b>\$1,293</b>	<b>\$1,293</b>		
<b>2.01.33 PCB Wipe &amp; Destruct Samp</b>						production rate = 0.5 hours/sample for two techs based upon facility exp	
Technician	79	hours	\$38.00	\$3,002	\$3,002	79 samp @ 0.5 hr/samp = 39.5 hours @ 2 pers/crew = 79 hours	technician rate 2011 3rd party quote
TCLP (Metals/VOCs/Semi-VOCs)	0	samp	\$446.67	\$0	\$0	concrete core samples and TCLP not required - permit	analytical price: average of three quotes
PCB Analysis (SW 8081/8082)	79	samp	\$83.33	\$6,583	\$6,583	47,557 SF @ 625 SF/samp + 1 dup/20 samp. = 79 samples	analytical price: average of three quotes
Subt - PCB Wipe/Destruct Samp				<b>\$9,585</b>	<b>\$9,585</b>		
<i>(Subt: Assemblies 2.01.30 thru 2.01.33)</i>				<b>\$84,646</b>	<b>\$84,646</b>	<i>building decontamination and sampling</i>	

Total Labor Hours 1801.3

**2.01 New Drum Management Building**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>2.01.34 PPE Usage &amp; H&amp;S Planning</b>						Level C @ 75%; Mod Level C @ 25% for total non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Mod Level C	56.3	days	\$9.00	\$507	\$507	1,801.3 hours @ 8 hr/day = 225.2 days @ 25% "Mod C" days = 56.3 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	168.9	days	\$25.00	\$4,223	\$4,223	1,801.3 hours @ 8 hr/day = 225.2 days @ 75% "C" days = 168.9 days	75% of non-supv hrs in Level C (price: \$25/day)
Safety Engineer	45	hours	\$75.00	\$3,375	\$3,375	1,801.3 hours @ 2.5% hr/hr = 45 hours	Safety Eng Rate: rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$8,104</b>	<b>\$8,104</b>		
<b>2.01.35 Supervision</b>						4 weeks for closure of Drum Management Building	
Foreman	160	hours	\$65.00	\$10,400	\$10,400	4 weeks @ 40 hrs/wk = 160.0 hours	Outside foreman rate: 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	Site Manager Rate: 2011 3rd party quote
Subtotal - Supervision				<b>\$10,400</b>	<b>\$10,400</b>		
<b>2.01.36 Certification</b>						Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory hours for all tasks	
Engineer	27	hours	\$130.00	\$3,510	\$3,510	1,801.3 hours @ 0.015 hr/hr = 27 hours	Engineer rate: 2011 3rd party quote
Clerical	27	hours	\$45.00	\$1,215	\$1,215	1,801.3 hours @ 0.015 hr/hr = 27 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				<b>\$4,725</b>	<b>\$4,725</b>		
<i>(Subt: Assemblies 2.01.34 thru 2.01.36)</i>				<b>\$23,229</b>	<b>\$23,229</b>	<i>supervision, health &amp; safety, and certification</i>	

<b>2.01 New Drum Mgmt Bldg</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$714,078</b>	<b>\$352,968</b>
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<b>2.01 New Drum Management Building</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$714,078	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$49,985	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$28,563	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$42,845	note: DEC uses 6%
Engineering During Construction	2.00%	\$14,282	note: DEC uses 2%
General Contractor Profit	6.00%	\$42,845	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$178,520	
<b>Subtotal - Drum Storage Bldg</b>		\$892,598	
<b>Plus Contingency</b>	10.00%	\$89,260	CWM and DEC 10%
<b>Total - New Drum Management Bldg</b>		<b>\$981,858</b>	

**Cost References:**

"RSM/HC" refers to the RSMMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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	Inventory
RCRA Solids – Shredder/Landfill	300 drums/75 cu. yds.
RCRA Solids - Stab/Landfill	48 rollofs/1152 tons
RCRA Solids - Macro/Landfill	18 rollofs/288 tons
PCB Liquids - Incineration	11 tankers/27,500 gals

<b>4.01.1 Inventory Verification</b>						prod'n rates: 2 drums/min/crew (100 drums/hour); and 8 tanker or rolloff/hour/crew; two persons required;	
Laborer	6	hours	\$39.00	\$234	\$234	300 drums @ 100 drums/hr = 3.0 hours @ 2 units/crew = 6.0 hours	HASP req's two; loaded labor rate 2011 3rd party quote
Laborer	16.5	hours	\$39.00	\$644	\$644	66 rollofs @ 8 rollofs/hr = 8.25 hours @ 2 units/crew = 16.5 hours	HASP req's two; loaded labor rate 2011 3rd party quote
Laborer	5.5	hours	\$39.00	\$215	\$215	11 tankers @ 4 tankers/hr = 2.75 hours @ 2 units/crew = 5.5 hours	HASP req's two; loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification				<b>\$1,092</b>	<b>\$1,092</b>		
(Subt: Assemblies 4.01.1)				<b>\$1,092</b>	<b>\$1,092</b>	survey and inventory of capacity of Stabilization area	

<b>4.01.2 Transp All Rollofs: Onsite Stab for Offsite disp</b>						production rate = 0.5 hours/rolloff for on-site travel (all rollofs previouslyexisting at site)	
Road Tractor (4 x 2, 30-ton)	24.0	hours	\$32.45	\$779	\$0	48 rollofs @ 1 rolloff/load = 48 loads @ 0.5 hours/trip = 24 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	24.0	hours	\$45.00	\$1,080	\$0	48 rollofs @ 1 rolloff/load = 48 loads @ 0.5 hours/trip = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0	hours	\$19.02	\$0	\$0	0 rollofs @ 1 rolloff/load = 0.0 loads @ 0.5 hours/trip = 0.0 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subtotal -Transport Rollofs Onsite				<b>\$1,859</b>	<b>\$0</b>		

<b>4.01.3 Transp All Rollofs: Onsite Stab for Onsite disp</b>						production rate = 0.5 hours/rolloff for on-site travel (all rollofs previouslyexisting at site)	
Road Tractor (4 x 2, 30-ton)	27.0	hours	\$32.45	\$0	\$876	48 rollofs @ 1 rolloff/load = 54 loads @ 0.5 hours/trip = 24 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	27.0	hours	\$45.00	\$0	\$1,215	48 rollofs @ 1 rolloff/load = 54 loads @ 0.5 hours/trip = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0	hours	\$19.02	\$0	\$0	0 rollofs @ 1 rolloff/load = 0.0 loads @ 0.5 hours/trip = 0.0 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subtotal -Transport Rollofs Onsite				<b>\$0</b>	<b>\$2,091</b>		

<b>4.01.4 Stabilization (non-Macro mat'l) for Offsite disp</b>						prod'n rate = 100 tons/hour = 800 tons/day (non-Macro Room material); 30 CY roll = 16 tons	
PROCESS TONS (incl kiln dust)	883.2	TONS	n/a			48 rollofs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 883.2 tons	30 CY/rolloff = 16 ton material/rolloff
Cement Kiln Dust - Mat'l&Delv Cost	115.2	tons	\$48.00	\$5,530	\$0	48 rollofs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 883.2 tons	CWM actual 2011 costs
Stabilization Cost	768.0	tons	\$25.00	\$19,200	\$0	Facility combined rate for material & delivery	CWM actual 2011 costs inc. labor & equipment
TCLP Testing - RCRA (EPA 1311)	16.0	samp	\$348.33	\$5,573	\$0	48 rollofs @ 3 ro's/samp = 16 samples	average of 3 third party labs; one sample per 3 rollofs
Subt - Stabilization				<b>\$30,303</b>	<b>\$0</b>	Facility include in stabilization rate; inc. labor & equipment	

<b>4.01.5 Stabilization (non-Macro mat'l) for Onsite disp</b>						prod'n rate = 100 tons/hour = 800 tons/day (non-Macro Room material); 30 CY roll = 16 tons	
PROCESS TONS (incl kiln dust)	883.2	TONS	n/a			48 rollofs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 883.2 tons	30 CY/rolloff = 16 ton material/rolloff
Cement Kiln Dust - Mat'l&Delv Cost	115.2	tons	\$48.00	\$0	\$5,530	48 rollofs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 883.2 tons	CWM actual 2011 costs
Stabilization Cost	768.0	tons	\$25.00	\$0	\$19,200	Facility combined rate for material & delivery	CWM actual 2011 costs inc. labor & equipment
TCLP Testing - RCRA (EPA 1311)	16.0	samp	\$348.33	\$0	\$5,573	48 rollofs @ 3 ro's/samp = 16 samples	average of 3 third party labs; one sample per 3 rollofs
Subt - Stabilization				<b>\$0</b>	<b>\$30,303</b>	Facility include in stabilization rate; inc. labor & equipment	

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>4.01.6 Load non-Macro Rolloffs</b>						facility include in stabilization cost	
Laborer	0	hours	\$39.00	\$0	\$0	Not required	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	0	hours	\$19.18	\$0	\$0		RSM/HC p. 467 (line item 01 54 33 20 0460)
Equipment Operator (Medium)	0	hours	\$45.00	\$0	\$0		loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0	hours	\$19.02	\$0	\$0		dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Load non-Macro Rolloffs				<b>\$0</b>	<b>\$0</b>		
<b>4.01.7 Transp Rolloffs to Onsite L'fill</b>						production rate = 0.25 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	12.0	hours	\$32.45	\$0	\$389	48 rolloffs @ 1 rolloff/load = 48 loads @ 0.25 hours/trip = 12 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	12.0	hours	\$45.00	\$0	\$540	48 rolloffs @ 1 rolloff/load = 48 loads @ 0.25 hours/trip = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - Transp RO's to Onsite Landfill				<b>\$0</b>	<b>\$929</b>	Assembly estimate assumes on-site disposal	
<b>4.01.8 Unload non-Macro Rolloffs</b>						production rate = 0.25 hours for unload in landfill	
Laborer	12.0	hours	\$39.00	\$0	\$468	48 rolloffs @ 1 rolloff/load = 48 loads @ 0.25 hours/trip = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	12.0	hours	\$19.18	\$0	\$230	48 rolloffs @ 1 rolloff/load = 48 loads @ 0.25 hours/trip = 12 hours	RSM/HC p. 467 (line item 01 54 33 20 0460)
Equipment Operator (Medium)	12.0	hours	\$45.00	\$0	\$540	48 rolloffs @ 1 rolloff/load = 48 loads @ 0.25 hours/trip = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0	hours	\$19.02	\$0	\$0		dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Unload RO's at Onsite L'Fill				<b>\$0</b>	<b>\$1,238</b>	Assembly estimate assumes on-site disposal	
<b>4.01.9 Offsite Landfill Disp/Solids</b>						assumes off-site land disposal; 54 roll-offs	
Offsite Transportation - Solids	21252.0	miles	\$3.25	\$69,069	\$0	883.2 tons @ 16 tons/load = 55.2 loads @ 385 miles/trip = 21,252 miles	Rate: transporters quote/site experience
Offsite Disp - Haz Rolloff Solids	883.2	tons	\$133.00	\$117,466	\$0	48 rolloffs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 883.2 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Off-site Landfill/non-Macro				<b>\$186,535</b>	<b>\$0</b>		
<b>4.01.10 Stab'n/Encap'n (Macro mat'l)</b>						production rate = 40 tons/hour = 320 tons/day (Macro material): for onsite disposal	
PROCESS TONS (incl kiln dust)	419.2	TONS				18 rolloffs @ 30 CY each @ 0.675 ton/CY + 15% absorbent = 419.2 tons	1 CY = 1,350# (0.675 ton) @ 50# per CF for "loose" mat'l
Laborer	41.9	hours	\$39.00	\$1,634	\$0	419.2 tons @ 40 tons/hr @ 10.5 hours @ 4 units/crew = 41.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	21	hours	\$50.00	\$1,050	\$0	419.2 tons @ 40 tons/hr @ 10.5 hours @ 2 units/crew = 21.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	10.5	hours	\$19.18	\$201	\$0	419.2 tons @ 40 tons/hr @ 10.5 hours @ 1 units/crew = 10.5 hours	RSM/HC p. 467 (line item 01 54 33 20 0460)
Loader (Medium)	10.5	hours	\$14.39	\$151	\$0	419.2 tons @ 40 tons/hr @ 10.5 hours @ 1 units/crew = 10.5 hours	RSM/HC p. 468 (line item 01 54 33 20 4610)
Absorbent Additive	81	CY	\$38.70	\$3,135	\$0	18 rolloffs @ 30 CY each @ 15% additive = 81 CY	2004 DEC Rate * Implicit Deflator
Encapsulation Container	18.0	units	\$1,000.00	\$18,000	\$0	18.0 units	CWM actual 2011 costs
Rolloff (30-CY) (not used)	0.0	units	\$19.02	\$0	\$0	0.0 units	dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Stab'n/Encap'n - Macro Mat'l				<b>\$24,171</b>	<b>\$0</b>		
<b>4.01.11 Transp Macro Encap'n Onsite</b>						production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	9.0	hours	\$32.45	\$0	\$292	18 rolloffs @ 1 rolloff/load = 18.0 loads @ 0.5 hours/trip = 9.0 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	9.0	hours	\$45.00	\$0	\$405	18 rolloffs @ 1 rolloff/load = 18.0 loads @ 0.5 hours/trip = 9.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0	hours	\$19.02	\$0	\$0		RSM/HC p. 472 (line item 01 54 33 40 6600)
Subtotal - Transp Macro Encap'n				<b>\$0</b>	<b>\$697</b>	Assembly estimate assumes on-site disposal	

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>4.01.12 Offsite Macro Encap'n</b>						assumes off-site land disposal; 18 macro-encap. conts. on-site disposal	
Offsite Transp'n - Encap Containers	6930.0	miles	\$3.25	\$22,523	\$0	18.0 contain @ 1 cont/load = 18.0 loads @ 385 miles/trip = 6930.0 miles	Rate: transporters quote/site experience
Offsite Disposal - Encap Containers	510.0	CY	\$337.50	\$172,125	\$0	18.0 contain @ 30 CY/cont = 510.0 CY	DEC 2004 Estimate accounting for inflation
Subt - Offsite Landfill Disp/Solids				\$194,648	\$0		
(Subt: Assemblies 4.01.2 thru 4.01.12)				\$437,515	\$35,259	onsite stabilization and offsite or onsite disposal of all Macro Room material	
<b>4.01.13 Shred Drums with Contents</b>						Shredding of drums not necessary. Drums transported direct to onsite landfill or offsite landfill	
Laborer	0	hours	\$39.00	\$0	\$0		loaded labor rate: loaded labor rate 2011 3rd party quote
Drum Shredder	0	hours	\$329.70	\$0	\$0		2004 DEC Rate * Implicit Deflator
Rolloff (30-CY)	0	hours	\$19.02	\$0	\$0		RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load Drums for Offsite L'fill				\$0	\$0		
<b>4.01.14 Load Full Solids Drums</b>						production rate = 80 drums/hour/person; Facility experience	
Laborer	3.8	hours	\$39.00	\$0	\$148	300 drums @ 80 drums/hr = 3.8 loads @ 2 units/crew = 3.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Forklift	1.9	hours	\$22.21	\$0	\$42	300 drums @ 80 drums/hr = 3.8 loads @ 1 units/crew = 1.9 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	1.9	hours	\$6.26	\$0	\$12	300 drums @ 80 drums/hr = 3.8 loads @ 1 units/crew = 1.9 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Load PCB Sol Drms to L'Fill				\$0	\$202		
<b>4.01.15 Transp Full Drms: onsite L'fill</b>						Assumes onsite land disposal; 0.5 hr per load to onsite landfill	
Road Tractor (4 x 2, 30-ton)	1.9	hours	\$32.45	\$0	\$62	300 drums @ 80 drums/load = 3.8 loads @ 0.5 hr/load = 1.9 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	1.9	hours	\$45.00	\$0	\$86	300 drums @ 80 drums/load = 3.8 loads @ 0.5 hr/load = 1.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Flatbed Trailer (40-ton)	1.9	hours	\$6.26	\$0	\$12	300 drums @ 80 drums/load = 3.8 loads @ 0.5 hr/load = 1.9 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Shrd Drms to Onsite Landfill				\$0	\$159		
<b>4.01.16 Unload Full Drms: onsite L'fill</b>						assumes on-site disposal: production rate = 80 drums/hour/person; Facility experience	
Laborer	3.8	hours	\$39.00	\$0	\$148	300 drums @ 80 drums/hr = 3.8 loads @ 2 units/crew = 3.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Forklift	1.9	hours	\$22.21	\$0	\$42	300 drums @ 80 drums/hr = 3.8 loads @ 1 units/crew = 1.9 hours	RSM/HC p. 470 (line item 01 54 33 40 2020)
Flatbed Trailer (40-ton)	1.9	hours	\$6.26	\$0	\$12	300 drums @ 80 drums/hr = 3.8 loads @ 1 units/crew = 1.9 hours	RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Unload Full Drums				\$0	\$202		
<b>4.01.17 Offsite Disp Full Drums</b>						assumes off-site land disposal; volume based on 4 drums/CY (+ drum contents)	
Offsite Transp'n - Drum Mat'l	1463.0	miles	\$3.50	\$5,121	\$0	300 drums @ 80 drums/ld = 3.8 loads @ 385 miles/trip = 1463.0 miles	Rate: transporters quote/site experience
Offsite Disposal - Drum Mat'l	300	drums	\$100.00	\$30,000	\$0	300 drums	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite L/F Disp: Full Drums				\$35,121	\$0	disposal of 300 drums with contents from drum shred area	
(Subt: Assemblies 4.01.13 thru 4.01.17)				\$35,121	\$564		
<b>4.01.18 Offsite T&amp;D - Tankers</b>						eleven 2,500-gal existing tankers loaded and parked at stabilization parking area	
Offsite Transp'n - 5.5K-gal Tankers	16819.0	miles	\$3.50	\$58,867	\$58,867	11 tankers @ 1529 miles/load = 16819 miles	Rate: transporters quote/site experience
Off-site Disp - Incin Bulk PCB Liqs	27500.0	gallons	\$4.68	\$128,700	\$128,700	11 tankers @ 2500 gals/tankr = 27500.0 gals	HWC/ETC 2004 & Current third party rate
Subt - Offsite T&D - Tankers				\$187,567	\$187,567	offsite transportation and disposal of 5 five-thousand gallon tankers from stabilization area	
(Subt: Assemblies 4.01.18)				\$187,567	\$187,567		

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>4.01.19 Decon Equipment</b>						prod'n rate = 52.5 SF/hr (1/2 of RSM/UP p. 9-167, 33-17-0813, as wash & rinse are combined)	
Reagent Silo/Hopper	19.0	hours	\$121.50	\$2,309	\$2,309	2 units @ 500 SF each = 1000.0 SF @ 52.5 SF/hour = 19.0 hours	2004 DEC Rate * Implicit Deflator
Control Room	19.0	hours	\$121.50	\$2,309	\$2,309	1 units @ 1000 SF each = 1000.0 SF @ 52.5 SF/hour = 19.0 hours	assume 20' x 10' x 10' (L x W x H)
Air Compressor/Ancillary Equip't	1.9	hours	\$121.50	\$231	\$231	1 units @ 100 SF each = 100.0 SF @ 52.5 SF/hour = 1.9 hours	assume 100 SF
Hydraulic Skid/Ancillary Equip't	14.3	hours	\$121.50	\$1,737	\$1,737	1 units @ 750 SF each = 750.0 SF @ 52.5 SF/hour = 14.3 hours	assume 750 SF
Drum Shredder	0.0	hours	\$121.50	\$0	\$0	Drum Shredder cleaned and removed 2009	
Knuckle Boom	9.5	hours	\$121.50	\$1,154	\$1,154	1 units @ 500 SF each = 500.0 SF @ 52.5 SF/hour = 9.5 hours	assume 500 SF
Backhoe	1.9	hours	\$121.50	\$231	\$231	1 units @ 100 SF each = 100.0 SF @ 52.5 SF/hour = 1.9 hours	assume 100 SF
Subt - Decon Equip't (wash & rinse)				<b>\$7,970</b>	<b>\$7,970</b>	7 units 3450.0 SF total	
<b>4.01.20 Decon Water Samp/Dispose</b>						production rate = 0.5 hours/sample for two techs; facility treatment unit price = \$0.0273/gallon	
Technician	7.7	hours	\$38.00	\$293	\$293	7.7 samp @ 0.5 hr/samp = 3.8 hours @ 2 units/crew = 7.7 hours	technician rate: rate 2011 3rd party quote
VOC Analysis (EPA 624)	7.7	samp	\$105.00	\$809	\$809	7.0 units @ 1.1 samp/unit = 7.7 samples	analytical price: average of three quotes
Onsite Water Disposal	3150.0	gal	\$0.0313	\$99	\$99	3450.0 SF @ 0.5 gal/sf/wa = 2100.0 gallons + 0.25 gal/sf/rinse = 1050.0 gallons	facility o/s mild waste treat price ; vol @ 0.05 gal/sf (equip lit)
Subt - Decon Water Samp/Dispose				<b>\$1,200</b>	<b>\$1,200</b>		
<b>4.01.21 PCB Wipe Samples</b>						production rate = 0.5 hours/sample for two techs; rate same as facility's	
Technician	7.7	hours	\$38.00	\$293	\$293	7.7 samp @ 0.5 hr/samp = 3.8 hours @ 2 units/crew = 7.7 hours	technician rate: rate 2011 3rd party quote
PCB Analysis/Wipe Test (SW 8081/8082)	7.7	samp	\$83.33	\$642	\$642	7.0 units @ 1.1 samp/unit = 7.7 samples	analytical price: average of three quotes
Subt - Wipe Samples				<b>\$934</b>	<b>\$934</b>		
<b>4.01.22 Dismant/Load Equipment</b>						prod'n rate = 150 SF/hr (based upon removing one 20K-gal tank in 8 hrs: 1,225 SF div. by 8 = 153 sf)	
Laborer	46.0	hours	\$39.00	\$1,794	\$1,794	3450 SF @ 150 SF/hour 23.0 hours 2 units/crew = 46.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Welding Equipment (300 amp towable)	23.0	hours	\$4.90	\$113	\$113	3450 SF @ 150 SF/hour 23.0 hours 1 units/crew = 23.0 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Yard Crane (25-ton)	23.0	hours	\$86.31	\$1,985	\$1,985	3450 SF @ 150 SF/hour 23.0 hours 1 units/crew = 23.0 hours	RSM/HC p. 474 (line item 01 54 33 60 2700)
Equipment Operator (Crane)	23.0	hours	\$50.00	\$1,150	\$1,150	3450 SF @ 150 SF/hour 23.0 hours 1 units/crew = 23.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - Dismantle Equipment				<b>\$5,042</b>	<b>\$5,042</b>		
(Subt: Assemblies 4.01.19 thru 4.01.22)				<b>\$15,146</b>	<b>\$15,146</b>	decontaminating and dismantling Equipment	

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>4.01.23 Demo/Load/Trans Ducts/Bagh</b>						prod'n rates: 125 LF/hr (ductwork) = 7 days; four days/unit (baghouses) = 32 days; total = 39 days	
Dismantle/Cut/Load Ductwork	7040.0	LF	\$2.14	\$15,066	\$15,066	7040 LF @ 3 SF/LF = 21120.0 SF @ 0.021 CF/SF = 16.4 CY	2004 DEC Rate * Implicit Deflator
Dismantle/Cut/Load Baghouses	8.0	each	\$7,340.17	\$58,721	\$58,721	8 units @ 2500 SF/unit = 20000.0 SF @ 0.021 CF/SF = 15.6 CY	2001 Rate * Implicit Deflator
Subt - Dismantle Ducts/Baghouses				<b>\$73,787</b>	<b>\$73,787</b>		
<b>4.01.24 Unload/Stabilize/Encapsulate</b>						production rate = 15 tons/hour = 120 tons/day; includes shredding and filling containers	
<i>PROCESS TONS (incl kiln dust)</i>	37.2	TONS				32.0 CY @ 1.0125 ton/CY + 15% kiln dust = 37.2 tons	1 CY = 2,025# (1.0125 ton) @ 75# per CF
Laborer	5.0	hours	\$39.00	\$195	\$195	37.2 tons @ 15 tons/hr @ 2.5 hours @ 2 units/crew = 5.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	7.4	hours	\$45.00	\$333	\$333	37.2 tons @ 15 tons/hr @ 2.5 hours @ 3 units/crew = 7.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	2.5	hours	\$19.18	\$48	\$48	37.2 tons @ 15 tons/hr @ 2.5 hours @ 1 units/crew = 2.5 hours	RSM/HC p. 467 (line item 01 54 33 20 0460)
Loader, Wheel (1 CY)	2.5	hours	\$14.39	\$36	\$36	37.2 tons @ 15 tons/hr @ 2.5 hours @ 1 units/crew = 2.5 hours	RSM/HC p. 468 (line item 01 54 33 20 4610)
Shredder	2.5	hours	\$329.70	\$824	\$824	37.2 tons @ 15 tons/hr @ 2.5 hours @ 1 units/crew = 2.5 hours	2004 DEC Rate * Implicit Deflator
Mixing Pit/Screening/Silo	2.5	hours	\$136.29	\$341	\$341	37.2 tons @ 15 tons/hr @ 2.5 hours @ 1 units/crew = 2.5 hours	2004 DEC Rate * Implicit Deflator
Cement Kiln Dust - Mat'l Cost	0.0	tons	\$0.00	\$0	\$0	32.0 CY @ 1.0125 ton/CY @ 15% kiln dust = 4.9 tons	
Cement Kiln Dust - Delivery Cost	0.0	loads	\$0.00	\$0	\$0	4.9 tons @ 20 ton/load = 0.2 loads	
Cement Kiln Dust - Mat'l&Delv Cost	4.9	tons	\$48.00	\$235	\$235		CWM actual 2011 costs
Encapsulation Containers	2.0	units	\$1,000.00	\$2,000	\$2,000	37.2 tons @ 18.6 ton/unit = 2.0 containers	CWM actual 2011 costs
Rolloffs (30-CY)	5.0	hours	\$19.02	\$95	\$95	37.2 tons @ 18.6 tons/unit = 2.0 rolloffs @ 2.5 hours/rolloff = 5.0 hours	dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Stabilize/Encapsulate				<b>\$4,107</b>	<b>\$4,107</b>		
<b>4.01.25 Transp Encap Units onsite L'F</b>						production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	1.0	hours	\$32.45	\$0	\$32	2 rolloffs @ 1 rolloff/load = 2.0 loads @ 0.5 hours/trip = 1.0 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	1.0	hours	\$45.00	\$0	\$45	2 rolloffs @ 1 rolloff/load = 2.0 loads @ 0.5 hours/trip = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0.0	hours	\$19.02	\$0	\$0		RSM/HC p. 472 (line item 01 54 33 40 6600)
Subt - Shrd Drms to Onsite Landfill				<b>\$0</b>	<b>\$77</b>	Transport to onsite landfill for disposal	
<b>4.01.26 Offsite Disp/Bghouse-Duct</b>						assumes off-site disposal; 2 macro-encap cont.; stabilized/encap. Baghouse debris	
Offsite Transp - Baghouse/Duct	770.0	miles	\$3.25	\$2,503	\$0	37.2 tons @ 18.6 tons/load = 2.0 loads @ 385 miles/trip = 770.0 miles	Rate: transporters quote/site experience
Offsite Disp'l - Baghouse/Duct Deb	36.8	CY	\$337.50	\$12,420	\$0	37.2 tons @ 1.013 tons/CY = 36.8 CY @ 27 CF/CY = 993.0 CF	DEC 2004 Estimate accounting for inflation
Subt - Offsite B'house/Duct Disp'l				<b>\$14,923</b>	<b>\$0</b>		
(Subt: Assemblies 4.01.23 thru 4.01.26)				<b>\$92,817</b>	<b>\$77,972</b>	demolition, stabilization, encapsulation, and off-site disposal of ductwork and baghouses	
<b>4.01.27 Decon Stab'n Areas (wash)</b>						production rate = 105 SF/hr for 1-person crew w/ one unit each; facility experience	
Laborer	580.3	hours	\$39.00	\$22,632	\$22,632	60934 SF @ 105 SF/hr = 580.3 hours @ 1 units/crew = 580.3 hours	two laborers-1 unit each; rate 2011 3rd party quote
Pressure Washer	396.4	hours	\$4.04	\$1,601	\$1,601	41619 SF @ 105 SF/hr = 396.4 hours @ 1 units/crew = 396.4 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper	0.0	hours	\$0.83	\$0	\$0		RSM/HC p. 473 (line item 01 54 33 40 7800)
Vacuum-Pressure Wash Combo	184	hours	\$22.94	\$4,221	\$4,221	19315 SF @ 105 SF/hr = 184 hours @ 1 units/crew = 184 hours	equip't price: average of three quotes
Subt - Decon Stab'n Areas (wash)				<b>\$28,453</b>	<b>\$28,453</b>	Pressure wash containment areas, walls, pits, & vacuum-pressure wash floors	
<b>4.01.28 Decon Stab'n Areas (rinse)</b>						production rate = 105 SF/hr for 1-person crew w/ one unit each; facility experience	
Laborer	184	hours	\$39.00	\$7,176	\$7,176	19315 SF @ 105 SF/hr = 184 hours @ 1 units/crew = 184 hours	two laborers-1 unit each; rate 2011 3rd party quote
Pressure Washer	0.0	hours	\$4.04	\$0	\$0		RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper	0.0	hours	\$0.83	\$0	\$0		RSM/HC p. 473 (line item 01 54 33 40 7800)
Vacuum-Pressure Wash Combo	184	hours	\$22.94	\$4,221	\$4,221	19315 SF @ 105 SF/hr = 184 hours @ 1 units/crew = 184 hours	equip't price: average of three quotes
Subt - Decon Stab'n Areas (rinse)				<b>\$11,397</b>	<b>\$11,397</b>	Rinse floor areas only	

**4.01 New Stabilization 11 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>4.01.29 Decon Water Samp/Dispose</b>						production rate = 0.5 hours/sample for two techs;	
Technician	13.2	hours	\$38.00	\$502	\$502	13.2 samp @ 0.5 hr/samp = 6.6 hours @ 2 units/crew 13.2 hours	technician rate: rate 2011 3rd party quote
VOC Analysis (EPA 624)	13.2	samp	\$105.00	\$1,386	\$1,386	12.0 areas @ 1.1 samp/area = 13.2 samples	analytical price: average of three quotes
On-site Water Disposal (wash only)	20809.5	gal	\$0.0313	\$651	\$651	41619 SF @ 0.5 gal/sf/wa = 20809.5 gallons	site waters waste treat price ; vol @ 0.5 gal/sf (equip lit)
On-site Water Disposal (wash-rinse)	965.8	gal	\$0.0313	\$30	\$30	19315 SF @ 0.05 gal/sf/wa = 965.8 gallons + 0.05 gal/sf/rinse= 965.8 gallons	site waters waste treat price ; vol @ 0.05 gal/sf (equip lit)
Subt - Decon Water Samp/Dispose				<b>\$2,569</b>	<b>\$2,569</b>		
<b>4.01.30 PCB Wipe &amp; Destruct Samp</b>						production rate 0.5 hours/sample for two techs; rate same as facility's	
Technician	75.4	hours	\$38.00	\$2,865	\$2,865	74.4 samp @ 0.5 hr/samp = 37.7 hours @ 2 units/crew = 75.4 hours	technician rate: rate 2011 3rd party quote
TCLP (Metals/VOCs/Semi-VOCs)	2.0	samp	\$446.67	\$893	\$893	2.0 areas @ 1 samp/area = 2.0 samples Uncoated concrete areas	analytical price: average of three quotes
PCB Analysis (SW 8081/8082)	75.4	samp	\$83.33	\$6,283	\$6,283	47129.0 SF @ 625 SF/samp = 75.4 samples	analytical price: average of three quotes
Subt - PCB Wipe/Destruct Samp				<b>\$10,042</b>	<b>\$10,042</b>		
(Subt: Assemblies 4.01.27 thru 4.01.30)				<b>\$52,461</b>	<b>\$52,461</b>	decontamination & sampling of floors, sumps, and pits	

Total Non-Super hours 1151.8

<b>4.01.31 PPE Usage &amp; H&amp;S Planning</b>						Level C @ 75%; Mod Level C @ 25% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Mod Level C	36.1	days	\$9.00	\$325	\$325	1151.8 hours @ 8 hr/day = 144.0 days @ 25% "Mod C" days = 36.0 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	108.2	days	\$25.00	\$2,705	\$2,705	1151.8 hours @ 8 hr/day = 144.0 days @ 75% "C" days = 108.0 days	75% of non-supv hrs in Level C (price: \$25/day)
Health & Safety Officer	28.8	hours	\$75.00	\$2,160	\$2,160	1151.8 hours @ 2.5% hr/hr = 28.8 hours	Safety Eng Rate: rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$5,190</b>	<b>\$5,190</b>		
<b>4.01.32 Supervision</b>						4 weeks for closure of Stabilization	
Foreman	160	hours	\$65.00	\$10,400	\$10,400	4 weeks @ 40 hrs/wk = 160.0 hours	Outside foreman rate: 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	Site Manager Rate: 2011 3rd party quote
Subtotal - Supervision				<b>\$10,400</b>	<b>\$10,400</b>		
<b>4.01.33 Certification</b>						Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory labor hours for all tasks	
Engineer	17.3	hours	\$130.00	\$2,249	\$2,249	1151.8 hours @ 0.015 hr/hr = 17.3 hours	Engineer rate: 2011 3rd party quote
Clerical	17.3	hours	\$45.00	\$779	\$779	1151.8 hours @ 0.015 hr/hr = 17.3 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				<b>\$3,028</b>	<b>\$3,028</b>		
(Subt: Assemblies 4.01.31 thru 4.01.33)				<b>\$18,617</b>	<b>\$18,617</b>	supervision, health & safety, and certification	
<b>4.01 New Stabilization 11 Tankers</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$840,335</b>	<b>\$388,677</b>		

<b>4.01 New Stabilization 11 Tankers</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$840,335	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$58,823	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$33,613	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$50,420	note: DEC uses 6%
Engineering During Construction	2.00%	\$16,807	note: DEC uses 2%
General Contractor Profit	6.00%	\$50,420	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$210,084	
<b>Subtotal - Stabilization Activity</b>		\$1,050,419	
<b>Plus Contingency</b>	10.00%	\$105,042	CWM and DEC 10%
<b>Total - New Stabilization</b>		<b>\$1,155,461</b>	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**5.32 AWTS Fac 5 1 tk**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>5.32.1 Inventory Verification</b>						
					prod'n rates: 50 drums/hr; 15 min/tanker or rolloff; 30 min/tank; two persons required	
Laborer	1.0	hours	\$39.00	\$39	1 tanks @ 0.5 hour/tank = 0.5 hours @ 2 units/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification				\$39		
(Subt: Assemb 5.32.1)				\$39	tank: T-9002	
<b>5.32.2 Empty Tank T-9002</b>						
					production rate = 1,650 gals/hour; RSM/UP p. 9-171 (line item 33-19-0101)	
Laborer	0.0	hours	\$39.00	\$0	Labor included in third party operation of AWTS	loaded labor rate: loaded labor rate 2011 3rd party quote
Pumping Equipment	0.0	hours	\$0.00	\$0	Existing equipment part of tank system	RSM/UP p. 9-171 (line item 33-19-0108)
Tank Trailer (5,500 gals)	0.6	hours	\$6.31	\$4	1000 gals @ 1650 gals/hr = 0.6 hours @ 1 units/crew = 0.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6900)
Subt - Empty Tank				\$4		
<b>5.32.3 Onsite Tanker Transport</b>						
					production rate = 0.5 hours/trip for onsite transport	
Tractor	0.1	hours	\$32.45	\$3	1000 gals @ 5500 gals/load = 0.2 loads @ 0.5 hrs/trip = 0.1 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	0.0	hours	\$45.00	\$0	Labor included in third party operation of AWTS	loaded labor rate: loaded labor rate 2011 3rd party quote
Tank Trailer (5,500 gals)	0.1	hours	\$6.31	\$1	1000 gals @ 5500 gals/load = 0.2 loads @ 0.5 hrs/trip = 0.1 hours	RSM/HC p. 472 (line item 01 54 33 40 6900)
Subt - Onsite Tanker Transport				\$4		
<b>5.32.4 Empty Tanker</b>						
					production rate = 1,650 gals/hour; RSM/UP p. 9-171 (line item 33-19-0101)	
Laborer	0.0	hours	\$39.00	\$0	Labor included in third party operation of AWTS	loaded labor rate: loaded labor rate 2011 3rd party quote
Pumping Equipment	0.0	hours	\$0.00	\$0	Existing equipment part of tank system	RSM/UP p. 9-171 (line item 33-19-0108)
Tank Trailer (5,500 gals)	0.6	hours	\$6.31	\$4	1000 gals @ 1650 gals/hr = 0.6 hours @ 1 units/crew = 0.6 hours	RSM/HC p. 472 (line item 01 54 33 40 6900)
Subt - Empty Tanker				\$4		
(Subt: Assemb 5.32.2 - 5.32.4)				\$11		
<b>5.32.5 Onsite Aqueous Treatment</b>						
					liquid wastes transferred to AWTS by tankers	
Onsite Aqueous Treatment - Tanks	1000.0	gals	\$0.1526	\$153	1000 gals	AWTS cost for groundwater
Subt - Onsite Aqueous Treatment				\$153		
(Subt: Assemb 5.32.5)				\$153	onsite treatment of tanks' waste liquids	
<b>5.32.6 Steel SCA Demolition</b>						
					prod'n rate = 200 SF/hr (rsm/up 16-01-0142/0216/0308, pp. 3-2/3-3,3-5); 1 CF debris per 36 sf sc area	
No. of Tanks/Capacity/Area/Weight	0.0	tnks @			0 gallons: 90 SF SCA: 3 CF @ 490 Lb/CF = 1225 Lbs	Steel Tanks only; estimate 490#/CF
Laborer	0.0	hours	\$39.00	\$0	0 SF @ 200 SF/hour 0.5 hours @ 3 units/crew = 0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	0.0	hours	\$45.00	\$0	0 SF @ 200 SF/hour 0.5 hours @ 2 units/crew = 0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	0.0	hours	\$84.09	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Metal Shears Attachment	0.0	hours	\$34.40	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	2004 DEC Rate * Implicit Deflator
Claw Attachment	0.0	hours	\$2.47	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	RSM/HC p. 477 (line item 01 54 33 20 0345)
Loader	0.0	hours	\$30.03	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Yard Crane	0.0	hours	\$86.31	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	RSM/HC p. 474 (line item 01 54 33 60 2700)
Welding Equipment	0.0	hours	\$5.41	\$0	0 SF @ 200 SF/hour 0.5 hours @ 1 units/crew = 0 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - Steel SCA Demolition				\$0	T-9002 is a double walled HDPE tank. No steel demolition will be required.	

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Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>5.32.7 HDPE Tank Demolition</b>					production rate = 200 SF/hour (same as steel tank demolition rate); 1 CF debris per 36 SF tank area	168 SF Tank & 178 SF Secondary Containment
<i>No. of Tanks/Capacity/Area/Weight</i>	1.0	tnks @			1000 gallons: 346 SF Tanks: 9.6 CF @ 245 Lb/CF = 2354 Lbs	HDPE Tanks & HDPLE Secondary Containment
Laborer	5.2	hours	\$39.00	\$203	346 SF @ 200 SF/hour 1.7 hours @ 3 units/crew = 5.2 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	3.5	hours	\$45.00	\$158	346 SF @ 200 SF/hour 1.7 hours @ 2 units/crew = 3.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	1.7	hours	\$84.09	\$143	346 SF @ 200 SF/hour 1.7 hours @ 1 units/crew = 1.7 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Metal Shears Attachment	1.7	hours	\$34.40	\$58	346 SF @ 200 SF/hour 1.7 hours @ 1 units/crew = 1.7 hours	2004 DEC Rate * Implicit Deflator
Claw Attachment	1.7	hours	\$2.47	\$4	346 SF @ 200 SF/hour 1.7 hours @ 1 units/crew = 1.7 hours	RSM/HC p. 477 (line item 01 54 33 20 0345)
Loader	1.7	hours	\$30.03	\$51	346 SF @ 200 SF/hour 1.7 hours @ 1 units/crew = 1.7 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Yard Crane	1.7	hours	\$86.31	\$147	346 SF @ 200 SF/hour 1.7 hours @ 1 units/crew = 1.7 hours	RSM/HC p. 474 (line item 01 54 33 60 2700)
Welding Equipment	0.0	hours	\$5.41	\$0	346 SF @ 200 SF/hour 1.7 hours @ 0 units/crew = 0.0 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - HDPE Tank Demolition				<b>\$764</b>	tank areas based upon actual tank dimensions, or upon OSWER 9476.00-6, Vol 3, p. 5-5	
<b>5.32.8 Tank Piping Demolition</b>					avg prod'n rate = 20 LF/hr, rsm/up p. 3-10 (16-01-0621/0622) for 2"/4" metal pipe @ 4#/LF	
<i>Estimated Piping Length</i>	100.0	LF			1 tanks @ 100 LF/tank = 100 LF @ 4 Lb/LF = 400 Lbs	combined Steel and HDPE Tanks' Piping
Laborers	10.0	hours	\$39.00	\$390	100 LF @ 20 LF/hour 5.0 hours @ 2 units/crew = 10.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Welding Equipment	5.0	hours	\$5.41	\$27	100 LF @ 20 LF/hour 5.0 hours @ 1 units/crew = 5.0 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - All Tanks' Piping Demolition				<b>\$417</b>	piping assumed to average 100 LF/tank	
<b>5.32.9 Tank Pump Demolition</b>					prod'n rate = 1 pump/hr (see RSM/UP p. 3-11, 16-01-0634 and 16-01-0636) assume 0.5 pumps/tank	
Laborers	1.0	hours	\$39.00	\$39	0.5 pumps @ 1 pump/hr 0.5 hours @ 2 units/crew = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Welding Equipment	0.5	hours	\$5.41	\$3	0.5 pumps @ 1 pump/hr 0.5 hours @ 1 units/crew = 0.5 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - All Tanks' Pump Demolition				<b>\$42</b>	pump weight = 250# each; one pump per tank is estimated	
<b>5.32.10 Load Tank Demo Debris</b>					production rate = 15 CY/hour; RSM/BC p. 42 (line item 02225-730-3080)	
Laborer	0.06	hours	\$39.00	\$2	1.0 CY @ 15 CY/hr = 0.06 hours @ 1 units/crew = 0.06 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	0.06	hours	\$45.00	\$3	1.0 CY @ 15 CY/hr = 0.06 hours @ 1 units/crew = 0.06 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Loader	0.06	hours	\$30.03	\$2	1.0 CY @ 15 CY/hr = 0.06 hours @ 1 units/crew = 0.06 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dump Trailer (20 CY)	0.06	hours	\$5.20	\$0	1.0 CY @ 15 CY/hr = 0.06 hours @ 1 units/crew = 0.06 hours	RSM/HC p. 469 (line item 01 54 33 20 5400)
Subt - Load Tank Demo Debris				<b>\$7</b>	1 CY tank demo debris = to 972 SF @ 1/3rd" thick; and/or 432 LF of 3" diam pipe; and/or 2 pumps	
<b>5.32.11 Unl'd Stabilize/Encapsulate</b>					prod rate = 15 tons/hour = 120 tons/day; includes unloading, shredding, and filling containers	
<i>PROCESS TONS (incl kiln dust)</i>	1.3	TONS			1.0 CY debr + 15% kiln dust = 1.15 CY total total tonnage = 1.9 tons	total tons derived from foregoing assemblies + kiln dust
Laborer	0.2	hours	\$39.00	\$8	1.9 tons @ 15 tons/hr @ 0.1 hours @ 2 units/crew = 0.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	0.3	hours	\$45.00	\$14	1.3 tons @ 15 tons/hr @ 0.1 hours @ 3 units/crew = 0.3 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	0.1	hours	\$19.18	\$2	1.3 tons @ 15 tons/hr @ 0.1 hours @ 1 units/crew = 0.1 hours	RSM/HC p. 467 (line item 01 54 33 20 0460)
Loader, Wheel (1 CY)	0.1	hours	\$14.39	\$1	1.3 tons @ 15 tons/hr @ 0.1 hours @ 1 units/crew = 0.1 hours	RSM/HC p. 468 (line item 01 54 33 20 4610)
Shredder	0.1	hours	\$329.70	\$33	1.3 tons @ 15 tons/hr @ 0.1 hours @ 1 units/crew = 0.1 hours	2004 DEC Rate * Implicit Deflator
Mixing Pit/Screening/Silo	0.1	hours	\$136.29	\$14	1.3 tons @ 15 tons/hr @ 0.1 hours @ 1 units/crew = 0.1 hours	2004 DEC Rate * Implicit Deflator
Cement Kiln Dust - Mat'l Cost	0.0	tons	\$0.00	\$0	0.3 tons	
Cement Kiln Dust - Delivery Cost	0.0	loads	\$0.00	\$0	0.3 tons @ 20 ton/load = 0.0 loads	
Cement Kiln Dust - Mat'l&Delv Cost	0.3	tons	\$48.00	\$14		CWM actual 2011 costs
Encapsulation Containers (30-CY)	0.03	units	\$1,000.00	\$30	1.15 CYs @ 30 CY/unit = 0.03 containers	CWM actual 2011 costs
Rolloffs (30-CY)	0.03	hours	\$19.02	\$1	1.15 CYs @ 30 CY/unit = 0.04 rolloffs @ 0.1 hours/rolloff = 0.03 hours	dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Stabilize/Encapsulate				<b>\$116</b>	1 CY tank demo debris = to 972 SF @ 1/3rd" thick; and/or 432 LF of 3" diam pipe; and/or 2 pumps	

**5.32 AWTS Fac 5 1 tk**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>5.32.12 Offsite T&amp;D - Tank Demo</b>					offsite disposal is determined to be the only disposal option	
Offsite Transportation - Debris	38.5	miles	\$3.25	\$125	1.15 CY @ 30 CY/load = 0.03 loads @ 385 miles/trip = 38.5 miles	Rate: transporters quote/site experience
Offsite Disposal - Tank Debris	1.15	CY	\$337.50	\$388	1.15 CY @ 27 CF/CY = 31.1 CF	DEC 2004 Estimate accounting for inflation
Subt - Offsite T&D - Tank Demo				<b>\$513</b>		
(Subt: Assemb 5.32.6 - 5.32.12)				<b>\$1,859</b>	tank/piping/pump demolition, and offsite transportation & disposal	

<b>5.32.13 Decon SCA (wash)</b>					not applicable - secondary containment demolished with primary tank	
Subt - Decon SCA (wash)				<b>\$0</b>		
<b>5.32.14 Decon SCA (rinse)</b>						
Subt - Decon SCA (rinse)				<b>\$0</b>		
<b>5.32.15 Decon Water Samp/Disp</b>						
Subt - Decon Water Samp/Dispose				<b>\$0</b>		
<b>5.32.16 PCB Wipe Samples</b>						
Subt - PCB Wipe/Destruct Samp				<b>\$0</b>		
(Subt: Assemb 5.32.13 - 5.32.16)				<b>\$0</b>	decontamination & sampling of SCA	

Total Non-Super Labor Hours 21.3

<b>5.32.17 PPE Usage/H&amp;S Planning</b>					Level C @ 75%; Mod Level C @ 25% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	0.0	days	\$0.00	\$0	21.3 hours @ 8 hr/day = 2.7 days @ 0% "D" days = 0.0 days	Standard Work Clothes - Site Experience
	0.7	days	\$9.00	\$6	21.3 hours @ 8 hr/day = 2.7 days @ 25% "Mod C" days = 0.7 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	2.0	days	\$25.00	\$50	21.3 hours @ 8 hr/day = 2.7 days @ 75% "C" days = 2.0 days	75% of non-supv hrs in Level C (price: \$25/day)
Safety Engineer	0.5	hours	\$75.00	\$38	21.3 hours @ 2.5% hr/hr = 0.5 hours	Safety Eng Rate: rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$94</b>		
<b>5.32.18 Supervision</b>					0.2 weeks supervisory time for closure of 1 tank	
Foreman	8.0	hours	\$65.00	\$520	0.2 weeks @ 40 hrs/wk = 8.0 hours	Outside foreman rate: 2011 3rd party quote
Site Project manager	0.0	hours	\$75.00	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	Site Manager Rate: 2011 3rd party quote
Subtotal - Supervision				<b>\$520</b>		
<b>5.32.19 Certification</b>					Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory hours for all tasks	
Engineer	0.3	hours	\$130.00	\$39	21.3 hours @ 0.015 hr/hr = 0.3 hours	Engineer rate: 2011 3rd party quote
Clerical	0.3	hours	\$45.00	\$14	21.3 hours @ 0.015 hr/hr = 0.3 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				<b>\$53</b>		
(Subt: Assemb 5.32.17 - 5.32.19)				<b>\$666</b>		

<b>5.32 AWTS Fac 5 1 tk</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$2,728</b>
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<b>5.32 AWTS (FacPond 5) 1 tk</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$2,728	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$191	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$109	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$164	note: DEC uses 6%
Engineering During Construction	2.00%	\$55	note: DEC uses 2%
General Contractor Profit	6.00%	\$164	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$682	
<b>Subt: AWTS (i/s A sou Full Trailer) 1 t</b>		\$3,411	
<b>Plus Contingency</b>	10.00%	\$341	CWM and DEC 10%
<b>Tot: AWTS (Fac Pond 5) 1 tk</b>		<b>\$3,752</b>	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**6.01 Fac Ponds (3&1-2)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.01.1 Inventory Verification</b>						production rate: 0.5 hour/pond to take depth estimate and estimate volume; two persons required	
Laborer	2.0	hours	\$39.00	\$78	\$78	2 ponds @ 0.5 hr/pond = 1.0 hours @ 2 units/crew = 2.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification (Subt: Assemblies 6.01.1 thru 6.01.1)				<b>\$78</b>	<b>\$78</b>	Fac Pond 8 out of service and empty inventory of liquid volumes in Ponds 1/2 and Pond 3	
<b>6.01.2 Ponds' Sampling &amp; Analysis</b>						production rate = 2.0 hours per composite sample for a three-person crew	
<i>Batch Sampling Events</i>						2 events @ 3 samp/evnt= 6 samples	sampling & analysis prior to pond discharge
Technician	36.0	hours	\$38.00	\$1,368	\$1,368	6 samp @ 2.0 hrs/samp = 12.0 hours @ 3 units/crew = 36.0 hours	technician rate: rate 2011 3rd party quote
Sampling Equipment	12.0	hours	\$25.00	\$300	\$300	6 samp @ 2.0 hrs/samp = 12.0 hours @ 1 units/crew = 12.0 hours	boat, samplers, meters, etc.
Sampling Supplies	6.0	samp	\$25.00	\$150	\$150	6 samples	bottles, shipping supplies
pH	6.0	samp	\$10.67	\$64	\$64	6 samples	analytical price: average of three quotes
Specific Conductance	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes
Temperature	6.0	samp	-	\$0	\$0	6 samples obtained using field equipment	Obtained using field equipment
Dissolved Oxygen	6.0	samp	-	\$0	\$0	6 samples obtained using field equipment	Obtained using field equipment
Total Dissolved solids (TDS)	6.0	samp	\$15.00	\$90	\$90	6 samples	analytical price: average of three quotes
TDVS (total dissolved volatile solids)	6.0	samp	\$23.33	\$140	\$140	6 samples	analytical price: average of three quotes
Alkalinity as CaCO3	6.0	samp	\$15.33	\$92	\$92	6 samples	analytical price: average of three quotes
TOC	6.0	samp	\$31.67	\$190	\$190	6 samples	analytical price: average of three quotes
Ca/Mg Hardness (200.7)	6.0	samp	\$24.33	\$146	\$146	6 samples	analytical price: average of three quotes
Total Suspended Solids (TSS)	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes
Settleable Solids	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes
Ammonia (NH3)	6.0	samp	\$22.67	\$136	\$136	6 samples	analytical price: average of three quotes
Phosphorous	6.0	samp	\$20.00	\$120	\$120	6 samples	analytical price: average of three quotes
TON (TKN-NH3)	6.0	samp	\$41.67	\$250	\$250	6 samples	analytical price: average of three quotes
Cyanide	6.0	samp	\$35.00	\$210	\$210	6 samples	analytical price: average of three quotes
Sulfates	6.0	samp	\$21.00	\$126	\$126	6 samples	analytical price: average of three quotes
Sulfides	6.0	samp	\$25.00	\$150	\$150	6 samples	analytical price: average of three quotes
Surfactants (MBAS)	6.0	samp	\$28.33	\$170	\$170	6 samples	analytical price: average of three quotes
BOD-5	6.0	samp	\$30.00	\$180	\$180	6 samples	analytical price: average of three quotes
Fluoride	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes
Chlorine	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes
Residual Chlorine	6.0	samp	\$15.00	\$90	\$90	6 samples	analytical price: average of three quotes
NO2	6.0	samp	\$21.00	\$126	\$126	6 samples	analytical price: average of three quotes
NO3	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes
VOCs (624)	6.0	samp	\$105.00	\$630	\$630	6 samples	analytical price: average of three quotes
Semi-volatile organics (625)	6.0	samp	\$208.33	\$1,250	\$1,250	6 samples	analytical price: average of three quotes
Pesticides/PCBs (608) (MDL 65 PPT (ng/l))	6.0	samp	\$133.33	\$800	\$800	6 samples	analytical price: average of three quotes
Oil & Grease (1631)	6.0	samp	\$21.67	\$130	\$130	6 samples	analytical price: average of three quotes
total Phenols	6.0	samp	\$26.67	\$160	\$160	6 samples	analytical price: average of three quotes
Priority Pollutant Metals (200.7) *	6.0	samp	\$188.00	\$1,128	\$1,128	6 samples	analytical price: average of three quotes
Mercury (245.1)	6.0	samp	\$25.00	\$150	\$150	6 samples	analytical price: average of three quotes
Mercury (1631B)	6.0	samp	\$111.67	\$670	\$670	6 samples	analytical price: average of three quotes
Acute Toxicity/Bioassy	2.0	samp	\$3,800.00	\$7,600	\$7,600	2 samples	One quote: actual cost for 2010
Subt - Ponds' Sampling & Analysis				<b>\$17,204</b>	<b>\$17,204</b>	two pond discharges (batches) requiring sampling & analysis (Fac Pond 8 empty)	Fac Pond 8 out of service empty

**6.01 Fac Ponds (3&1-2)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.01.3 S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; two 40-hour predischarge qualification reports	
Divers (Sr. Technicians)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
SCBA Gear (2 units)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Laborer (Surface Support)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Underwater Inspection	1.0	each	\$4,000.00	\$4,000	\$4,000	\$4,000 per event @ 1 event per year	Based on 2010 site rate of \$3,500
Engineer (Report)	80.0	hours	\$130.00	\$10,400	\$10,400	2 events @ 40 hrs/event = 80.0 hours @ 1 units/crew = 80.0 hours	Eng Rate: rate 2011 3rd party quote
Subt - S&A Cert'n & Report				<b>\$14,400</b>	<b>\$14,400</b>	<i>diver(s) to check discharge pipe; also engineer's predischarge qualification report</i>	Fac Pond 8 out of service empty
<i>(Subt: Assemblies 6.01.2 thru 6.01.3)</i>				<b>\$31,604</b>	<b>\$31,604</b>		
<b>6.01.4 Empty (Pump) FAC Pond 1/2</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
<i>FAC Pond 1/2 Inventory in Gallons</i>	22881000.0	<i>gals</i>	<i>n/a</i>			<i>381.4 total hours req'd to pump</i>	<i>Fac Pond 1/2 = 22,881,000 gallons</i>
AWTS Tech'n (8-hr day shift/straight time)	190.7	day hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (day shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	190.7	nite hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (night shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.25 below	
Maintenance (day shift only)	114.4	day hrs	\$45.00	\$5,148	\$5,148	381.4 tot hrs @ 30% (total hrs) = 114.4 hours @ 1 units/crew = 114.4 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	38.1	day hrs	\$38.00	\$1,448	\$1,448	381.4 tot hrs @ 10% (total hrs) = 38.1 hours @ 1 units/crew = 38.1 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.25 below	
Settleable Solids	95.4	samp	\$13.33	\$1,272	\$1,272	381.4 tot hrs @ 1 samp/4.0 hrs = 95.4 samples	analytical price: average of three quotes
Dissolved Oxygen	1.7	samp	-	\$0	\$0	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples Field Measurement	analytical price: average of three quotes
Sulfide (total)	1.7	samp	\$25.00	\$43	\$43	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	381.4	total hrs	\$12.34	\$4,706	\$4,706	381.4 tot hrs @ 100% total time = 381.4 hours @ 1 units/crew = 381.4 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/3,000 LF)	1144050.0	foot-hrs	\$0.0110	\$12,585	\$12,585	381.4 tot hrs @ 100% total time = 381.4 hours @ 3000 LF/crew = 1144050 foot-hrs	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 1/2				<b>\$49,992</b>	<b>\$49,992</b>	<i>transfer contents of FAC Pond 1/2 to discharge pipe to Niagara River (3,000 ft)</i>	
<b>6.01.5 Treat FAC Pond 3 Contents</b>						FAC Pond 3 contents already have been treated; no further treatment required.	
Treat FAC Pond 3 Contents		gals	\$0.00	\$0	\$0		used unit price of \$0.00/gal as no treatment is required
Subt - Treat FAC Pond 3 Contents				<b>\$0</b>	<b>\$0</b>	<i>no treatment required for FAC Pond 3 contents prior to discharge</i>	
<b>6.01.6 Tranfer (Pump) FAC Pond 8</b>						Assumes NYSDEC approval of clean closure	Avg 28.8 inches precipitaiton per year
<i>FAC Pond 8 Inventory in Gallons</i>	0.0	<i>gals</i>	<i>n/a</i>				<i>Fac Pond 8 = 0 gallons</i>
Subtotal - Pump FAC Pond 8				<b>\$0</b>	<b>\$0</b>	<b><i>FAC Pond 8 closed. Precipitation that enters impoundment managed as stormwater</i></b>	
<b>6.7 Empty (Pump) FAC Pond 3</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
<i>FAC Pond 8 Inventory in Gallons</i>	51355000.0	<i>gals</i>	<i>n/a</i>				<i>FAC Pond 3: 51,355,000 gals</i>
AWTS Tech'n (8-hr day shift/straight time)	428.0	day hrs	\$65.00	\$27,820	\$27,820	855.9 tot hrs @ 50% (day shift) = 428.0 hours @ 1 units/crew = 428.0 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	428.0	nite hrs	\$65.00	\$27,820	\$27,820	855.9 tot hrs @ 50% (night shift) = 428.0 hours @ 1 units/crew = 428.0 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.25 below	
Maintenance (day shift only)	256.8	day hrs	\$39.00	\$10,015	\$10,015	855.9 tot hrs @ 30% (total hrs) = 256.8 hours @ 1 units/crew = 256.8 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	85.6	day hrs	\$38.00	\$3,253	\$3,253	855.9 tot hrs @ 10% (total hrs) = 85.6 hours @ 1 units/crew = 85.6 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.25 below	
Settleable Solids	214.0	samp	\$13.33	\$2,853	\$2,853	855.9 hours @ 1.0 sample per 4.0 hours = 214.0 samples	analytical price: average of three quotes
Dissolved Oxygen	10.7	samp	-	\$0	\$0	855.9 hours @ 1.0 sample per 80.0 hours = 10.7 samples Field Measurement	analytical price: average of three quotes
Sulfide (total)	10.7	samp	\$25.00	\$268	\$268	855.9 hours @ 1.0 sample per 80.0 hours = 10.7 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	855.9	hours	\$12.34	\$10,562	\$10,562	855.9 hours @ 100% total time = 855.9 hours @ 1 units/crew = 855.9 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/0 LF)g p ( )	0.0	foot-hrs	\$0.0110	\$0	\$0	855.9 hours @ 100% total time = 855.9 hours @ 0 LF/crew = 0 hours	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 3				<b>\$82,590</b>	<b>\$82,590</b>	<i>transfer contents of FAC Pond 3 to Niagara River</i>	
<i>(Subt: Assemblies 6.01.4 thru 6.01.7)</i>				<b>\$132,582</b>	<b>\$132,582</b>		

**6.01 Fac Ponds (3&1-2)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.01.8 Soil/Sed S&amp;A - FAC Pond 1/2</b>							
<i>FAC Pond 1/2 Area in SF</i>	187500.0	SF	n/a			18.8 areas = 19 grids: 38 metals 2 hazardous 17 organ	Fac Pond 1/2 = 187,500 SF; grids @ 100' x 100'
Technician	114.0	hours	\$38.00	\$4,332	\$4,332	57 samp @ 1 hrs/samp = 57.0 hours @ 2 units/crew = 114.0 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	57.0	samp	\$10.00	\$570	\$570	57 samples	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	17.0	samp	\$615.00	\$10,455	\$10,455	17 samples	analytical price: average of three quotes
Priority Pollutant Metals	38.0	samp	\$158.33	\$6,017	\$6,017	38 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 1/2				<b>\$23,827</b>	<b>\$23,827</b>	<i>sampling and analyses of FAC Pond 1/2 soils and sediments</i>	
<b>6.9 Soil/Sed S&amp;A - FAC Pond 3</b>							
<i>FAC Pond 3 Area in SF</i>	495000.0	SF	n/a			12.4 areas = 13 grids: 26 metals 2 hazardous 11 organ	Fac Pond 3 = 495,000 SF; grids @ 200' x 200'
Technician	78.0	hours	\$38.00	\$2,964	\$2,964	39 samp @ 1 hrs/samp = 39.0 hours @ 2 units/crew = 78.0 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	39.0	samp	\$10.00	\$390	\$390	39 samples @	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	11.0	samp	\$615.00	\$6,765	\$6,765	11 samples	analytical price: average of three quotes
Priority Pollutant Metals	26.0	samp	\$158.33	\$4,117	\$4,117	26 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 3				<b>\$16,689</b>	<b>\$16,689</b>	<i>sampling and analyses of FAC Pond 3 soils and sediments</i>	
<b>6.10 Soil/Sed S&amp;A - FAC Pond 8</b>							
<b>Fac Pond 8 Sampling and Analysis performed in 2005. Report submitted November 2009.</b>						<b>No COCs above background Assumes NYSDEC approval of clean closure</b>	
<i>FAC Pond 8 Area in SF</i>	302500.0	SF	n/a			7.6 areas = 8 grids: 16 metals 2 hazardous 6 organ	Fac Pond 8 = 302,500 SF; grids @ 200' x 200'
Subtotal - Soil/Sed S&A - FAC 8				<b>\$0</b>	<b>\$0</b>	<i>sampling and analyses of FAC Pond 8 soils and sediments completed for clean closure</i>	
<i>(Subt: Assemblies 6.01.8 thru 6.01.10)</i>				<b>\$40,516</b>	<b>\$40,516</b>	<i>sampling and analyses of soils and sediments from FAC Ponds 1/2 and 3</i>	
<b>6.01.11 Excavate Soil/Sed - FAC 1/2</b>							
<i>FAC Pond 1/2 Area in SF x 0.5' dp</i>	187500.0	SF	n/a			production rate = 100 CY/hour, includes loading & tranport to stabilization:site experience 93750 CF = 3472 CY	
Laborer	34.7	hours	\$39.00	\$1,353	\$1,353	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	34.7	hours	\$84.09	\$2,918	\$2,918	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	34.7	hours	\$24.78	\$860	\$860	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Excavate Soil/Sed - FAC 1/2				<b>\$8,254</b>	<b>\$8,254</b>	<i>excavate soils and sediments from FAC Pond 1/2</i>	
<b>6.01.12 Stabilize FAC Pond 1/2</b>							
<i>PROCESS TONS (incl kiln dust)</i>	5390.6	TONS	n/a			production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill 3472 CY @ 1.35 ton/CY + 15% kiln dust = 5390.6 tons	1 CY = 2,700# (1.35 ton) @ 100# per CF
Dump Truck (12-ton load)	53.9	hours	24.78	\$1,336	\$1,336	5390.6 tons @ 100 tons/hr @ 53.9 hours @ 1 units/crew = 53.9 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Cement Kiln Dust - Mat'l&Delv Cost	703.1	tons	\$48.00	\$33,749	\$33,749	3472 CY @ 1.35 ton/CY @ 15% kiln dust = 703.1 tons	CWM actual 2011 costs
Stabilization Cost	4687.2	tons	\$25.00	\$117,180	\$117,180	3472 CY @ 1.35 ton/CY = 4687.2 tons	CWM actual 2011 costs inc. labor & equipment
TCLP (Metals/VOCs/Semi-VOCs)	1.3	each	\$446.67	\$581	\$581	53.9 hours @ 1 test/40 hr = 1.3 tests	analytical price: average of three quotes
Subt - Stabilize FAC Pond 1/2				<b>\$152,845</b>	<b>\$152,845</b>	<i>stabilize soils and sediments from FAC Pond 1/2</i>	
<b>6.13 Transp FAC 1/2: Offsite Disp</b>							
Offsite Transportation - Solids	103757.5	miles	\$3.25	\$337,212	\$0	production rate = 0.5 hours/rolloff for on-site travel 5390.6 tons @ 20 tons/load = 269.5 loads @ 385 miles/trip = 103757.5 miles	Rate: transporters quote/site experience
Subt - FAC 1/2 to Offsite Landfill				<b>\$337,212</b>	<b>\$0</b>	<i>transport soils &amp; sediments from FAC Pond 1/2 to offsite landfill</i>	
<b>6.13a Transp/Unload FAC 1/2: Onsite Disp</b>							
Driver	224.6	hours	\$45.00	\$0	\$10,107	production rate = 0.5 hours for onsite travel 5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	224.6	hours	\$24.78	\$0	\$5,566	5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - FAC 1/2 to Onsite Landfill				<b>\$0</b>	<b>\$15,673</b>	<i>onsite disposal of stabilized sediment</i>	

**6.01 Fac Ponds (3&1-2)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.14 Offsite FAC 1/2 Disposal</b>						if onsite landfill capacity not available	
Offsite Disposal - FAC 1/2 Soil/Sed	5390.6	tons	\$133.00	\$716,950	\$0	5390.6 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Landfill Disposal				<b>\$716,950</b>	<b>\$0</b>	offsite disposal of soils & sediments from FAC Pond 1/2	
(Subt: Assemblies 6.01.11 thru 6.01.14)				<b>\$1,215,261</b>	<b>\$176,772</b>	excavation, stabilization, and T&D for FAC Pond 1/2 soils & sediments	
<b>6.01.15 Excavate Soil/Sed - FAC 3</b>						production rate = 100 CY/hour, includes loading & transport to stabilization:site experience	
FAC Pond 3 Area in SF x 0.5' dp	495500.0	SF	n/a			247750 CF = 9176 CY	
Laborer	91.8	hours	\$39.00	\$3,580	\$3,580	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	91.8	hours	\$45.00	\$4,131	\$4,131	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	91.8	hours	\$84.09	\$7,719	\$7,719	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	91.8	hours	\$45.00	\$4,131	\$4,131	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	91.8	hours	\$24.78	\$2,275	\$2,275	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Excavate Soil/Sed - FAC 3				<b>\$21,836</b>	<b>\$21,836</b>	excavate soils and sediments from FAC Pond 3	
<b>6.01.16 Stabilize FAC Pond 3</b>						production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill	
PROCESS TONS (incl kiln dust)	14245.6	TONS	n/a			9176 CY @ 1.35 ton/CY + 15% kiln dust = 14245.6 tons	1 CY = 2,700# (1.35 ton) @ 100# per CF
Dump Truck (12-ton load)	142.5	hours	24.78	\$3,531	\$3,531	14245.6 tons @ 100 tons/hr @ 142.5 hours @ 1 units/crew = 142.5 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Cement Kiln Dust - Mat'l&Delv Cost	1858.1	tons	\$48.00	\$89,189	\$89,189	9176 CY @ 1.35 ton/CY @ 15% kiln dust = 1858.1 tons	CWM actual 2011 costs
Stabilization Cost	12387.6	tons	\$25.00	\$309,690	\$309,690	9176 CY @ 1.35 ton/CY = 12387.6	CWM actual 2011 costs inc. labor & equipment
TCLP (Metals/VOCs/Semi-VOCs)	11.9	each	\$446.67	\$5,315	\$5,315	474.9 hours @ 1 test/40 hr = 11.9 tests	analytical price: average of three quotes
Subt - Stabilize FAC Pond 3				<b>\$407,725</b>	<b>\$407,725</b>	stabilize soils and sediments from FAC Pond 3	
<b>6.01.17 Transp FAC 3: Offsite Disp</b>						production rate = 0.5 hours/rolloff for on-site travel	
Offsite Transportation - Solids	274235.5	miles	\$3.25	\$891,265	\$0	14245.6 tons @ 20 tons/load = 712.3 loads @ 1385 hours/trip = 274,235.5 miles	Rate: transporters quote/site experience
Subt - FAC 3 to Offsite Landfill				<b>\$891,265</b>	<b>\$0</b>	transport soils & sediments from FAC Pond 3 to offsite landfill	
<b>6.01.17a Transp/Unload FAC 3: Onsite Disp</b>						production rate = 0.5 hours for onsite travel	
Driver	593.6	hours	\$45.00	\$0	\$26,712	14245.6 tons @ 12 tons/load = 1187.1 loads @ 0.5 hours/trip = 593.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	593.6	hours	\$24.78	\$0	\$14,709	14245.6 tons @ 12 tons/load = 1187.1 loads @ 0.5 hours/trip = 593.6 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - FAC 3 to Onsite Landfill				<b>\$0</b>	<b>\$41,421</b>	onsite disposal of stabilized sediment	
<b>6.01.18 Offsite FAC 3 Disposal</b>						in-house estimate = \$0 for on-site disposal	
Disposal - FAC 3 Soil/Sediments	14245.6	tons	\$133.00	\$1,894,665	\$0	14245.6 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Landfill Disposal				<b>\$1,894,665</b>	<b>\$0</b>	offsite disposal of soils & sediments from FAC Pond 3	
(Subt: Assemblies 6.01.15 thru 6.01.18)				<b>\$3,215,492</b>	<b>\$470,983</b>	excavation, stabilization, and T&D for FAC Pond 3 soils & sediments	
<b>6.01.19 Backfill/Grade - FAC 1/2</b>						production rate = 200 CY/hour, site experience w/ 2 dozers; 11,000 CY onsite soil/clay available from berms	
FAC Pond 1/2 Backfill Volume	31250.0	CY	n/a			31250 CY minus 11000 CY onsite = 20250 CY borrow	
Laborer	156.3	hours	\$39.00	\$6,094	\$6,094	31250 CY @ 200 CY/hr = 156.25 hours @ 1 units/crew = 156.25 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	312.5	hours	\$45.00	\$14,063	\$14,063	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	312.5	hours	\$56.38	\$17,619	\$17,619	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	20250.0	CY	\$11.00	\$222,750	\$222,750	20250 CY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 1/2				<b>\$260,525</b>	<b>\$260,525</b>	backfill and grade FAC Pond 1/2	

**6.01 Fac Ponds (3&1-2)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.01.20 Backfill/Grade - FAC 3</b>							
						production rate = 200 CY/hour, site experience w/ 2 dozers	
<i>FAC Pond 3 Backfill Volume</i>	137500.0	CY	n/a			137500 CY minus 0 CY onsite = 137500 CY borrow	
Laborer	687.5	hours	\$39.00	\$26,813	\$26,813	137500 CY @ 200 CY/hr = 687.5 hours @ 1 units/crew = 687.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	1375.0	hours	\$45.00	\$61,875	\$61,875	137500 CY @ 200 CY/hr = 687.5 hours @ 2 units/crew = 1375.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	1375.0	hours	\$56.38	\$77,523	\$77,523	137500 CY @ 200 CY/hr = 687.5 hours @ 2 units/crew = 1375.0 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	137500.0	CY	\$11.00	\$1,512,500	\$1,512,500	137500 CY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 3				<b>\$1,678,710</b>	<b>\$1,678,710</b>	<i>backfill and grade FAC Pond 3</i>	
<b>6.01.21 Backfill/Grade - FAC 8</b>							
							Assumes Sitewide Permit Modified for construction of RMU-2
<i>FAC Pond 8 Backfill Volume</i>	0.0	CY	n/a				
Subt - Backfill/Grade - FAC 8				\$0	\$0	<i>backfill and grade FAC Pond 8 not necessary. Area used for Cell 20 of RMU-2</i>	
<i>(Subt: Assemblies 6.01.19 thru 6.01.21)</i>				<b>\$1,939,235</b>	<b>\$1,939,235</b>	<i>backfill and grade FAC Ponds 1/2 and 3</i>	
<b>6.01.22 Seed/Fertilize FAC 1/2 &amp; 3</b>							
						soil prep prod' rate = 33K sf/day (0.75 ac/day); seed/fert prod'n rate = 80K sf/day (1.8 ac/day)	
<i>FAC Pond 1/2 Surface Area</i>	309.3	MSF	n/a			7.1 acres	
<i>FAC Pond 3 Surface Area</i>	575.0	MSF	n/a			13.2 acres	
<i>FAC Pond 8 Surface Area</i>	0.0	MSF	n/a			0 acres	Area used for Cell 20 of RMU-2
Soil Preparation	0.0	MSF	\$0.00	\$0	\$0	Not necessary	Seed/fertilize of FAC Pond 8 not necessary.
Seeding & Fertilizing	884.3	MSF	\$73.97	\$65,412	\$65,412	884.3 MSF	2004 DEC Rate * Implicit Deflator
Subt - Seed/Fert FACs 1/2, 3, & 8				<b>\$65,412</b>	<b>\$65,412</b>	<i>seeding and fertilizing FAC Ponds 1/2 and 3</i>	
<i>(Subt: Assemblies 6.01.22 thru 6.01.22)</i>				<b>\$65,412</b>	<b>\$65,412</b>	<i>seeding and fertilizing FAC Ponds 1/2 and 3</i>	
<b>6.01.23 GW Well Monitoring</b>							
						production = 0.5 hours/sample for two techs	
Technician	20.0	hours	\$38.00	\$760	\$760	20.0 samp @ 0.5 hrs/samp = 10.0 hours @ 2 units/crew = 20.0 hours	technician rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	20.0	samp	\$25.00	\$500	\$500	20.0 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	20.0	samp	\$105.00	\$2,100	\$2,100	20.0 points @ 1.0 sampls/pt = 20.0 samples	analytical price: average of three quotes
Subt - GW Well Monitoring				<b>\$3,360</b>	<b>\$3,360</b>	<i>monitoring of seven monitoring wells (plus three QA blanks/duplicates) - two events during one year closure</i>	Monitoring of Fac Ponds 1&2 and 3
<i>(Subt: Assemblies 6.01.23 thru 6.01.23)</i>				<b>\$3,360</b>	<b>\$3,360</b>		
Total Non-Super hours 5711.3							
<b>6.01.24 PPE Usage &amp; H&amp;S Planning</b>							
						Level C @ 0%; Level Mod C @ 25%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	535.4	days	\$0.00	\$0	\$0	5711.3 hours @ 8 hr/day = 713.9 days @ 75% "D" days = 535.4 days	Standard Work Clothes - Site Experience
PPE Usage - Mod Level C	178.5	days	\$9.00	\$1,607	\$1,607	5711.3 hours @ 8 hr/day = 713.9 days @ 25% "C" days = 178.5 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	0.0	days	\$25.00	\$0	\$0	5711.3 hours @ 8 hr/day = 713.9 days @ 0% "C" days = 0.0 days	0% of non-supv hrs in Level C (price: \$25/day)
Health & Safety Officer	142.8	hours	\$75.00	\$10,710	\$10,710	5711.3 hours @ 2.5% hr/hr = 142.8 hours	Safety Eng Rate: rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$12,317</b>	<b>\$12,317</b>		
<b>6.01.25 Supervision</b>							
						18 weeks for closure of FAC Ponds	
Foreman	720.0	hours	\$65.00	\$46,800	\$46,800	18 weeks @ 40 hrs/wk = 720.0 hours	Foreman rate 2011 3rd party quote
Site Project Manager	0.0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$46,800</b>	<b>\$46,800</b>		
<b>6.01.26 Certification</b>							
						Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory labor hours for all tasks	
Engineer	85.7	hours	\$130.00	\$11,141	\$11,141	5711.3 hours @ 0.015 hr/hr = 85.7 hours	Engineer rate: 2011 3rd party quote
Clerical	85.7	hours	\$45.00	\$3,857	\$3,857	5711.3 hours @ 0.015 hr/hr = 85.7 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				<b>\$14,998</b>	<b>\$14,998</b>		
<i>(Subt: Assemblies 6.24 thru 6.26)</i>				<b>\$74,114</b>	<b>\$74,114</b>	<i>supervision, health &amp; safety, and certification</i>	
<b>6.01 Fac Ponds</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$6,717,653</b>	<b>\$2,934,655</b>		

<b>6.01 Fac Ponds (3 &amp; 1-2)</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$6,717,653	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$470,236	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$268,706	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$403,059	note: DEC uses 6%
Engineering During Construction	2.00%	\$134,353	note: DEC uses 2%
General Contractor Profit	6.00%	\$403,059	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$1,679,413	
<b>Subt: Fac Ponds</b>		\$8,397,067	
<b>Plus Contingency</b>	10.00%	\$839,707	CWM and DEC 10%
<b>Tot: Fac Ponds</b>		\$9,236,773	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.1 Inventory Verification</b>						production rate: 0.5 hour/pond to take depth estimate and estimate volume; two persons required	
Laborer	3.0	hours	\$39.00	\$117	\$117	3 ponds @ 0.5 hr/pond = 1.5 hours @ 2 units/crew = 3.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification <i>(Subt: Assemblies 6.02.1)</i>				<b>\$117</b>	<b>\$117</b>	<i>inventory of liquid volumes in Ponds 1/2, 3, &amp; 5</i>	
<b>6.02.2 Ponds' Sampling &amp; Analysis</b>						production rate = 2.0 hours per composite sample for a three-person crew	
<i>Batch Sampling Events</i>						<i>3 events @ 3 samp/evnt= 9 samples</i>	sampling & analysis prior to pond discharge
Technician	54.0	hours	\$38.00	\$2,052	\$2,052	9 samps @ 2.0 hrs/samp = 18.0 hours @ 3 units/crew = 54.0 hours	technician rate: rate 2011 3rd party quote
Sampling Equipment	18.0	hours	\$25.00	\$450	\$450	9 samps @ 2.0 hrs/samp = 18.0 hours @ 1 units/crew = 18.0 hours	boat, samplers, meters, etc.
Sampling Supplies	9.0	samp	\$25.00	\$225	\$225	9 samples	bottles, shipping supplies
pH	9.0	samp	\$10.67	\$96	\$96	9 samples	analytical price: average of three quotes
Specific Conductance	9.0	samp	\$13.33	\$120	\$120	9 samples	analytical price: average of three quotes
Temperature	9.0	samp	-	\$0	\$0	9 samples obtained using field equipment	Obtained using field equipment
Dissolved Oxygen	9.0	samp	-	\$0	\$0	9 samples obtained using field equipment	Obtained using field equipment
Total Dissolved solids (TDS)	9.0	samp	\$15.00	\$135	\$135	9 samples	analytical price: average of three quotes
TDVS (total dissolved volatile solids)	9.0	samp	\$23.33	\$210	\$210	9 samples	analytical price: average of three quotes
Alkalinity as CaCO3	9.0	samp	\$15.33	\$138	\$138	9 samples	analytical price: average of three quotes
TOC	9.0	samp	\$31.67	\$285	\$285	9 samples	analytical price: average of three quotes
Ca/Mg Hardness (200.7)	9.0	samp	\$24.33	\$219	\$219	9 samples	analytical price: average of three quotes
Total Suspended Solids (TSS)	9.0	samp	\$13.33	\$120	\$120	9 samples	analytical price: average of three quotes
Settleable Solids	9.0	samp	\$13.33	\$120	\$120	9 samples	analytical price: average of three quotes
Ammonia (NH3)	9.0	samp	\$22.67	\$204	\$204	9 samples	analytical price: average of three quotes
Phosphorous	9.0	samp	\$20.00	\$180	\$180	9 samples	analytical price: average of three quotes
TON (TKN-NH3)	9.0	samp	\$41.67	\$375	\$375	9 samples	analytical price: average of three quotes
Cyanide	9.0	samp	\$35.00	\$315	\$315	9 samples	analytical price: average of three quotes
Sulfates	9.0	samp	\$21.00	\$189	\$189	9 samples	analytical price: average of three quotes
Sulfides	9.0	samp	\$25.00	\$225	\$225	9 samples	analytical price: average of three quotes
Surfactants (MBAS)	9.0	samp	\$28.33	\$255	\$255	9 samples	analytical price: average of three quotes
BOD-5	9.0	samp	\$30.00	\$270	\$270	9 samples	analytical price: average of three quotes
Fluoride	9.0	samp	\$19.33	\$174	\$174	9 samples	analytical price: average of three quotes
Chlorine	9.0	samp	\$19.33	\$174	\$174	9 samples	analytical price: average of three quotes
Residual Chlorine	9.0	samp	\$15.00	\$135	\$135	9 samples	analytical price: average of three quotes
NO2	9.0	samp	\$21.00	\$189	\$189	9 samples	analytical price: average of three quotes
NO3	9.0	samp	\$19.33	\$174	\$174	9 samples	analytical price: average of three quotes
VOCs (624)	9.0	samp	\$105.00	\$945	\$945	9 samples	analytical price: average of three quotes
Semi-volatile organics (625)	9.0	samp	\$208.33	\$1,875	\$1,875	9 samples	analytical price: average of three quotes
Pesticides/PCBs (608) (MDL 65 PPT (ng/l))	9.0	samp	\$133.33	\$1,200	\$1,200	9 samples	analytical price: average of three quotes
Oil & Grease (1631)	9.0	samp	\$21.67	\$195	\$195	9 samples	analytical price: average of three quotes
total Phenols	9.0	samp	\$26.67	\$240	\$240	9 samples	analytical price: average of three quotes
Priority Pollutant Metals (200.7) *	9.0	samp	\$188.00	\$1,692	\$1,692	9 samples	analytical price: average of three quotes
Mercury (245.1)	9.0	samp	\$25.00	\$225	\$225	9 samples	analytical price: average of three quotes
Mercury (1631B)	9.0	samp	\$111.67	\$1,005	\$1,005	9 samples	analytical price: average of three quotes
Acute Toxicity/Bioassy	3.0	samp	\$3,800.00	\$11,400	\$11,400	3 samples	One quote: actual cost for 2010
Subt - Ponds' Sampling & Analysis				<b>\$25,806</b>	<b>\$25,806</b>	<i>three pond discharges (batches) requiring sampling &amp; analysis</i>	Fac Pond 8 out of service empty

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.3 S&amp;A Certification &amp; Report</b>							
						one event per year for divers to check discharge pipe; two 40-hour pre-discharge qualification reports	
Divers (Sr. Technicians)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
SCBA Gear (2 units)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Laborer (Surface Support)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Underwater Inspection	1.0	each	\$4,000.00	\$4,000	\$4,000	\$4,000 per event @ 1 event per year	Based on 2010 site rate of \$3,500
Engineer (Report)	120.0	hours	\$130.00	\$15,600	\$15,600	3 events @ 40 hrs/event = 120.0 hours @ 1 units/crew = 120.0 hours	Eng Rate: rate 2011 3rd party quote
Subt - S&A Cert'n & Report				\$19,600	\$19,600	diver(s) to check discharge pipe; also engineer's pre-discharge qualification report	Fac Pond 8 out of service empty
(Subt: Assemblies 6.02.2 thru 6.02.3)				\$45,406	\$45,406		
<b>6.02.4 Empty (Pump) FAC Pond 1/2</b>							
						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
FAC Pond 1/2 Inventory in Gallons	22881000.0	gals	n/a			381.4 total hours req'd to pump	Fac Pond 1/2 = 22,881,000 gallons
AWTS Tech'n (8-hr day shift/straight time)	190.7	day hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (day shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	190.7	nite hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (night shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.25 below	
Maintenance (day shift only)	114.4	day hrs	\$45.00	\$5,148	\$5,148	381.4 tot hrs @ 30% (total hrs) = 114.4 hours @ 1 units/crew = 114.4 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	38.1	day hrs	\$38.00	\$1,448	\$1,448	381.4 tot hrs @ 10% (total hrs) = 38.1 hours @ 1 units/crew = 38.1 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.25 below	
Settleable Solids	95.4	samp	\$13.33	\$1,272	\$1,272	381.4 tot hrs @ 1 samp/4.0 hrs = 95.4 samples	analytical price: average of three quotes
Dissolved Oxygen	1.7	samp	-	\$0	\$0	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples	Field Measurement
Sulfide (total)	1.7	samp	\$25.00	\$43	\$43	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	381.4	total hrs	\$12.34	\$4,706	\$4,706	381.4 tot hrs @ 100% total time = 381.4 hours @ 1 units/crew = 381.4 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/3,000 LF)	1144050.0	foot-hrs	\$0.0110	\$12,585	\$12,585	381.4 tot hrs @ 100% total time = 381.4 hours @ 3000 LF/crew = 1144050 foot-hrs	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 1/2				\$49,992	\$49,992	transfer contents of FAC Pond 1/2 to discharge pipe to Niagara River (3,000 ft)	
<b>6.02.5 Transfer (Pump) FAC Pond 5</b>							
						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
FAC Pond 5 Inventory in Gallons	24700000.0	gals	n/a			412 total hours req'd to pump	Fac Pond 5 = 24,700,000 gallons
AWTS Tech'n (8-hr day shift/straight time)	206.0	day hrs	\$65.00	\$13,390	\$13,390	412 tot hrs @ 50% (day shift) = 206 hours @ 1 units/crew = 206 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	206.0	nite hrs	\$65.00	\$13,390	\$13,390	412 tot hrs @ 50% (night shift) = 206 hours @ 1 units/crew = 206 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.01.28 below	
Maintenance (day shift only)	123.6	day hrs	\$45.00	\$5,562	\$5,562	412 tot hrs @ 30% (total hrs) = 123.6 hours @ 1 units/crew = 123.6 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	41.2	day hrs	\$38.00	\$1,566	\$1,566	412 tot hrs @ 10% (total hrs) = 41.2 hours @ 1 units/crew = 41.2 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.01.28 below	
Settleable Solids	103.0	samp	\$13.33	\$1,373	\$1,373	412 hours @ 1.0 sample per 4.0 hours = 103 samples	analytical price: average of three quotes
Dissolved Oxygen	5.2	samp	-	\$0	\$0	412 hours @ 1.0 sample per 80.0 hours = 5.2 samples	Field Measurement
Sulfide (total)	5.2	samp	\$25.00	\$130	\$130	412 hours @ 1.0 sample per 80.0 hours = 5.2 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	412.0	total hrs	\$12.34	\$5,084	\$5,084	412 tot hrs @ 100% total time = 412 hours @ 1 units/crew = 412 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/3,000 LF)	1236000.0	foot-hrs	\$0.0110	\$13,596	\$13,596	412 tot hrs @ 100% total time = 412 hours @ 3000 LF/crew = 1236000 foot-hrs	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 5				\$54,091	\$54,091	transfer contents of FAC Pond 5 to discharge pipe to Niagara River (3,000 ft)	

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.6 Empty (Pump) FAC Pond 3</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
<i>FAC Pond 8 Inventory in Gallons</i>	51355000.0	<i>gals</i>	<i>n/a</i>				<i>FAC Pond 3: 51,355,000 gals</i>
AWTS Tech'n (8-hr day shift/straight time)	428.0	day hrs	\$65.00	\$27,820	\$27,820	855.9 tot hrs @ 50% (day shift) = 428.0 hours @ 1 units/crew = 428.0 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	428.0	nite hrs	\$65.00	\$27,820	\$27,820	855.9 tot hrs @ 50% (night shift) = 428.0 hours @ 1 units/crew = 428.0 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.25 below	
Maintenance (day shift only)	256.8	day hrs	\$39.00	\$10,015	\$10,015	855.9 tot hrs @ 30% (total hrs) = 256.8 hours @ 1 units/crew = 256.8 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	85.6	day hrs	\$38.00	\$3,253	\$3,253	855.9 tot hrs @ 10% (total hrs) = 85.6 hours @ 1 units/crew = 85.6 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.25 below	
Settleable Solids	214.0	samp	\$13.33	\$2,853	\$2,853	855.9 hours @ 1.0 sample per 4.0 hours = 214.0 samples	analytical price: average of three quotes
Dissolved Oxygen	10.7	samp	-	\$0	\$0	855.9 hours @ 1.0 sample per 80.0 hours = 10.7 samples Field Measurement	analytical price: average of three quotes
Sulfide (total)	10.7	samp	\$25.00	\$268	\$268	855.9 hours @ 1.0 sample per 80.0 hours = 10.7 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	855.9	hours	\$12.34	\$10,562	\$10,562	855.9 hours @ 100% total time = 855.9 hours @ 1 units/crew = 855.9 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/0 LF)g p ( )	0.0	foot-hrs	\$0.0110	\$0	\$0	855.9 hours @ 100% total time = 855.9 hours @ 0 LF/crew = 0 hours	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 3				<b>\$82,590</b>	<b>\$82,590</b>	<i>transfer contents of FAC Pond 3 to Niagara River</i>	
<i>(Subt: Assemblies 6.02.4 thru 6.02.6)</i>				<b>\$186,673</b>	<b>\$186,673</b>		
<b>6.02.7 Remove Fac Pond 5 Liner System</b>						<b>Ballast area assume 1.73 acres</b>	
<i>FAC Pond 5 Ballast Area in SF x 1' dp</i>	2795.0	<i>CY</i>	<i>n/a</i>			75,471 SF * 1ft. Depth / 27 = 2795 CY	
Laborer	28.0	hours	\$39.00	\$1,092	\$1,092	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	28.0	hours	\$45.00	\$1,260	\$1,260	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	28.0	hours	\$84.09	\$2,355	\$2,355	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	28.0	hours	\$45.00	\$0	\$1,260	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load) Onsite Disposal	28.0	hours	\$24.78	\$0	\$694	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Offsite Transportation - Ballast	1034.0	miles	\$3.25	\$3,361	\$0	4136.6 tons @ 20 tons/load = 206.8 loads @ 5 miles/trip = 1034 miles	Rate: transporters quote/site experience
Offsite Disposal - FAC 5 Ballast	4136.6	tons	\$27.00	\$111,688	\$0	Assume non-hazardous material 2795 CY * 1.48 ton/CY = 4136.6 tons	1.48 ton/CY industry standard for gravel.
Subtotal - Ballast Removal				<b>\$119,755</b>	<b>\$6,660</b>		Non-Haz Disposal/Site Experience
<b>Fac Pond 5 Geo-synthetic Removal</b>						<b>Geosynthetic Footprint Area = 235,455 SF = 5.4 acres</b>	
EIA Geomembrane Disposal	470910.0	SF	<i>n/a</i>			5.4 acres * 43,560 SF/Acre = 235,455 SF	
Geocomposite Disposal	235455.0	SF	<i>n/a</i>			2 layers @ 5.4 acres 470,910 SF @ 0.22lb/SF = 51.8 tons	1 roll = 16,100SF = 3,500lbs = 0.22lb/SF
Non-woven Geotextile Disposal	75471.0	SF	<i>n/a</i>			1 layer @ 5.4 acres 235,455 SF @ 0.41lb/SF = 48.3 tons	1 roll = 2,200 SF = 900 lbs = 0.41lb/SF
Laborer	156.4	hours	\$39.00	\$6,100	\$6,100	1.73 acres (Beneath Ballast) 75,471 SF @ 0.13lb/SF = 4.9 tons	1 roll = 4,500 SF = 600lbs = 0.13lb/SF
Equipment Operator (Medium)	156.4	hours	\$45.00	\$7,038	\$7,038	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	156.4	hours	\$84.09	\$13,152	\$13,152	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Driver	156.4	hours	\$45.00	\$0	\$7,038	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	156.4	hours	\$24.78	\$0	\$3,876	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Offsite Transportation - Geosynthetics	43.8	miles	\$3.25	\$142	\$0	105 tons @ 12 tons/load = 8.75 loads @ 5 miles/trip = 43.75 miles	Rate: transporters quote/site experience
Offsite Disposal - FAC 5 Geosynthetics	105.0	tons	\$27.00	\$2,835	\$0	781,836 SF = 105 tons	Non-Haz Disposal/Site Experience
Subtotal - Geosynthetic Removal				<b>\$29,266</b>	<b>\$37,203</b>		
<i>(Subt: Assemblies 6.02.7)</i>				<b>\$149,022</b>	<b>\$43,863</b>		
<b>6.02.8 Soil/Sed S&amp;A - FAC Pond 1/2</b>							
<i>FAC Pond 1/2 Area in SF</i>	187500.0	<i>SF</i>	<i>n/a</i>			18.8 areas = 19 grids: 38 metals 2 hazardous 17 organ	Fac Pond 1/2 = 187,500 SF; grids @ 100' x 100'
Technician	114.0	hours	\$38.00	\$4,332	\$4,332	57 samp @ 1 hrs/samp = 57.0 hours @ 2 units/crew = 114.0 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	57.0	samp	\$10.00	\$570	\$570	57 samples	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	17.0	samp	\$615.00	\$10,455	\$10,455	17 samples	analytical price: average of three quotes
Priority Pollutant Metals	38.0	samp	\$158.33	\$6,017	\$6,017	38 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 1/2				<b>\$23,827</b>	<b>\$23,827</b>	<i>sampling and analyses of FAC Pond 1/2 soils and sediments</i>	

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.9 Soil/Sed S&amp;A - FAC Pond 3</b>							
<i>FAC Pond 3 Area in SF</i>	495000.0	SF	n/a			12.4 areas = 13 grids: 26 metals 2 hazardous 11 organ	Fac Pond 3 = 495,000 SF; grids @ 200' x 200'
Technician	78.0	hours	\$38.00	\$2,964	\$2,964	39 samp @ 1 hrs/samp = 39.0 hours @ 2 units/crew = 78.0 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	39.0	samp	\$10.00	\$390	\$390	39 samp @	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	11.0	samp	\$615.00	\$6,765	\$6,765	11 samples	analytical price: average of three quotes
Priority Pollutant Metals	26.0	samp	\$158.33	\$4,117	\$4,117	26 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 3				<b>\$16,689</b>	<b>\$16,689</b>	<i>sampling and analyses of FAC Pond 3 soils and sediments</i>	
<b>6.02.10 Soil/Sed S&amp;A - FAC Pond 5</b>							
<i>FAC Pond 5 Area in SF</i>	235455.0	SF	n/a			5.9 areas = 6 grids: 12 metals 2 hazardous 4 organ	Fac Pond 5 = 235,455 SF; grids @ 200' x 200'
Technician	36.0	hours	\$38.00	\$1,368	\$1,368	18 samp @ 1 hrs/samp = 18 hours @ 2 units/crew = 36 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	18.0	samp	\$10.00	\$180	\$180	18 samp @	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	4.0	samp	\$615.00	\$2,460	\$2,460	7 samples	analytical price: average of three quotes
Priority Pollutant Metals	12.0	samp	\$158.33	\$1,900	\$1,900	18 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 5				<b>\$8,361</b>	<b>\$8,361</b>	<i>sampling and analyses of FAC Pond 5 clay liner</i>	
<i>(Subt: Assemblies 6.02.8 thru 6.02.10)</i>				<b>\$48,877</b>	<b>\$48,877</b>	<i>sampling and analyses of soils and sediments from FAC Ponds 1/2, 3, and 5</i>	
<b>6.02.11 Excavate Soil/Sed - FAC 1/2</b>							
<i>FAC Pond 1/2 Area in SF x 0.5' dp</i>	187500.0	SF	n/a			production rate = 100 CY/hour, includes loading & transport to stabilization:site experience 93750 CF = 3472 CY	
Laborer	34.7	hours	\$39.00	\$1,353	\$1,353	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	34.7	hours	\$84.09	\$2,918	\$2,918	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	34.7	hours	\$24.78	\$860	\$860	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Excavate Soil/Sed - FAC 1/2				<b>\$8,254</b>	<b>\$8,254</b>	<i>excavate soils and sediments from FAC Pond 1/2</i>	
<b>6.02.12 Stabilize FAC Pond 1/2</b>							
<i>PROCESS TONS (incl kiln dust)</i>	5390.6	TONS	n/a			production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill 3472 CY @ 1.35 ton/CY + 15% kiln dust = 5390.6 tons	1 CY = 2,700# (1.35 ton) @ 100# per CF
Dump Truck (12-ton load)	53.9	hours	24.78	\$1,336	\$1,336	5390.6 tons @ 100 tons/hr @ 53.9 hours @ 1 units/crew = 53.9 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Cement Kiln Dust - Mat'l&Delv Cost	703.1	tons	\$48.00	\$33,749	\$33,749	3472 CY @ 1.35 ton/CY @ 15% kiln dust = 703.1 tons	CWM actual 2011 costs
Stabilization Cost	4687.2	tons	\$25.00	\$117,180	\$117,180	3472 CY @ 1.35 ton/CY = 4687.2 tons	CWM actual 2011 costs inc. labor & equipment
TCLP (Metals/VOCs/Semi-VOCs)	1.3	each	\$446.67	\$581	\$581	53.9 hours @ 1 test/40 hr = 1.3 tests	analytical price: average of three quotes
Subt - Stabilize FAC Pond 1/2				<b>\$152,845</b>	<b>\$152,845</b>	<i>stabilize soils and sediments from FAC Pond 1/2</i>	
<b>6.02.13 Transp FAC 1/2: Offsite Disp</b>							
Offsite Transportation - Solids	103757.5	miles	\$3.25	\$337,212	\$0	production rate = 0.5 hours/rolloff for on-site travel 5390.6 tons @ 20 tons/load = 269.5 loads @ 385 miles/trip = 103757.5 miles	Rate: transporters quote/site experience
Subt - FAC 1/2 to Offsite Landfill				<b>\$337,212</b>	<b>\$0</b>	<i>transport soils &amp; sediments from FAC Pond 1/2 to offsite landfill</i>	
<b>6.02.14 Transp/Unload FAC 1/2: Onsite Disp</b>							
Driver	224.6	hours	\$45.00	\$0	\$10,107	production rate = 0.5 hours for onsite travel 5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	224.6	hours	\$24.78	\$0	\$5,566	5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - FAC 1/2 to Onsite Landfill				<b>\$0</b>	<b>\$15,673</b>	<i>onsite disposal of stabilized sediment</i>	
<b>6.02.15 Offsite FAC 1/2 Disposal</b>							
Offsite Disposal - FAC 1/2 Soil/Sed	5390.6	tons	\$133.00	\$716,950	\$0	if onsite landfill capacity not available 5390.6 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Landfill Disposal				<b>\$716,950</b>	<b>\$0</b>	<i>offsite disposal of soils &amp; sediments from FAC Pond 1/2</i>	
<i>(Subt: Assemblies 6.02.11 thru 6.02.15)</i>				<b>\$1,215,261</b>	<b>\$176,772</b>	<i>excavation, stabilization, and T&amp;D for FAC Pond 1/2 soils &amp; sediments</i>	

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.16 Excavate Soil/Sed - FAC 3</b>							
<i>FAC Pond 3 Area in SF x 0.5' dp</i>	495500.0	SF	n/a			production rate = 100 CY/hour, includes loading & transport to stabilization:site experience 247750 CF = 9176 CY	
Laborer	91.8	hours	\$39.00	\$3,580	\$3,580	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	91.8	hours	\$45.00	\$4,131	\$4,131	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	91.8	hours	\$84.09	\$7,719	\$7,719	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	91.8	hours	\$45.00	\$4,131	\$4,131	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	91.8	hours	\$24.78	\$2,275	\$2,275	9175.9 CY @ 100 CY/hr = 91.8 hours @ 1 units/crew = 91.8 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Excavate Soil/Sed - FAC 3				<b>\$21,836</b>	<b>\$21,836</b>	<i>excavate soils and sediments from FAC Pond 3</i>	
<b>6.02.17 Stabilize FAC Pond 3</b>							
<i>PROCESS TONS (incl kiln dust)</i>	14245.6	TONS	n/a			production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill 9176 CY @ 1.35 ton/CY + 15% kiln dust = 14245.6 tons	1 CY = 2,700# (1.35 ton) @ 100# per CF
Dump Truck (12-ton load)	142.5	hours	24.78	\$3,531	\$3,531	14245.6 tons @ 100 tons/hr @ 142.5 hours @ 1 units/crew = 142.5 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Cement Kiln Dust - Mat'l&Delv Cost	1858.1	tons	\$48.00	\$89,189	\$89,189	9176 CY @ 1.35 ton/CY @ 15% kiln dust = 1858.1 tons	CWM actual 2011 costs
Stabilization Cost	12387.6	tons	\$25.00	\$309,690	\$309,690	9176 CY @ 1.35 ton/CY = 12387.6	CWM actual 2011 costs inc. labor & equipment
TCLP (Metals/VOCs/Semi-VOCs)	11.9	each	\$446.67	\$5,315	\$5,315	474.9 hours @ 1 test/40 hr = 11.9 tests	analytical price: average of three quotes
Subt - Stabilize FAC Pond 3				<b>\$407,725</b>	<b>\$407,725</b>	<i>stabilize soils and sediments from FAC Pond 3</i>	
<b>6.02.18 Transp FAC 3: Offsite Disp</b>							
Offsite Transportation - Solids	274235.5	miles	\$3.25	\$891,265	\$0	production rate = 0.5 hours/rolloff for on-site travel 14245.6 tons @ 20 tons/load = 712.3 loads @ 1385 hours/trip = 274,235.5 miles	Rate: transporters quote/site experience
Subt - FAC 3 to Offsite Landfill				<b>\$891,265</b>	<b>\$0</b>	<i>transport soils &amp; sediments from FAC Pond 3 to offsite landfill</i>	
<b>6.02.19 Transp/Unload FAC 3: Onsite Disp</b>							
Driver	593.6	hours	\$45.00	\$0	\$26,712	production rate = 0.5 hours for onsite travel 14245.6 tons @ 12 tons/load = 1187.1 loads @ 0.5 hours/trip = 593.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	593.6	hours	\$24.78	\$0	\$14,709	14245.6 tons @ 12 tons/load = 1187.1 loads @ 0.5 hours/trip = 593.6 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - FAC 3 to Onsite Landfill				<b>\$0</b>	<b>\$41,421</b>	<i>onsite disposal of stabilized sediment</i>	
<b>6.02.20 Offsite FAC 3 Disposal</b>							
Disposal - FAC 3 Soil/Sediments	14245.6	tons	\$133.00	\$1,894,665	\$0	in-house estimate = \$0 for on-site disposal 14245.6 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Landfill Disposal (Subt: Assemblies 6.02.16 thru 6.02.20)				<b>\$1,894,665</b>	<b>\$0</b>	<i>offsite disposal of soils &amp; sediments from FAC Pond 3</i> <i>excavation, stabilization, and T&amp;D for FAC Pond 3 soils &amp; sediments</i>	
				<b>\$3,215,492</b>	<b>\$470,983</b>		
<b>6.02.21 Excavate Soil - FAC 5</b>							
<i>(Subt: Assemblies 6.02.21)</i>				<b>\$0</b>	<b>\$0</b>	<i>Fac Pond 5 Clay liner assumed to be clean and left in place</i>	
<b>6.02.22 Backfill/Grade - FAC 1/2</b>							
<i>FAC Pond 1/2 Backfill Volume</i>	31250.0	CY	n/a			production rate = 200 CY/hour, site experience w/ 2 dozers; 11,000 CY onsite soil/clay available from berms 31250 CY minus 11000 CY onsite = 20250 CY borrow	
Laborer	156.3	hours	\$39.00	\$6,094	\$6,094	31250 CY @ 200 CY/hr = 156.25 hours @ 1 units/crew = 156.25 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	312.5	hours	\$45.00	\$14,063	\$14,063	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	312.5	hours	\$56.38	\$17,619	\$17,619	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	20250.0	CY	\$11.00	\$222,750	\$222,750	20250 CY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 1/2				<b>\$260,525</b>	<b>\$260,525</b>	<i>backfill and grade FAC Pond 1/2</i>	
<b>6.02.23 Backfill/Grade - FAC 3</b>							
<i>FAC Pond 3 Backfill Volume</i>	137500.0	CY	n/a			production rate = 200 CY/hour, site experience w/ 2 dozers 137500 CY minus 0 CY onsite = 137500 CY borrow	
Laborer	687.5	hours	\$39.00	\$26,813	\$26,813	137500 CY @ 200 CY/hr = 687.5 hours @ 1 units/crew = 687.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	1375.0	hours	\$45.00	\$61,875	\$61,875	137500 CY @ 200 CY/hr = 687.5 hours @ 2 units/crew = 1375.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	1375.0	hours	\$56.38	\$77,523	\$77,523	137500 CY @ 200 CY/hr = 687.5 hours @ 2 units/crew = 1375.0 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	137500.0	CY	\$11.00	\$1,512,500	\$1,512,500	137500 CY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 3				<b>\$1,678,710</b>	<b>\$1,678,710</b>	<i>backfill and grade FAC Pond 3</i>	

**6.02 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.02.24 Backfill/Grade - FAC 5</b>							
FAC Pond 5 Backfill Volume	58550.0	CY	n/a			berms 58550 CY onsite berm material	
Laborer	292.8	hours	\$39.00	\$11,419	\$11,419	58550 CY @ 200 CY/hr = 292.8 hours @ 1 units/crew = 292.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	585.6	hours	\$45.00	\$26,352	\$26,352	58550 CY @ 200 CY/hr = 292.8 hours @ 2 units/crew = 585.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	585.6	hours	\$56.38	\$33,016	\$33,016	58550 CY @ 200 CY/hr = 292.8 hours @ 2 units/crew = 585.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	0.0	CY	\$11.00	\$0	\$0	Assumes only on-site materials will be used.	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 5				<b>\$70,787</b>	<b>\$70,787</b>	backfill and grade FAC Pond 5	
(Subt: Assemblies 6.02.22 thru 6.02.24)				<b>\$2,010,022</b>	<b>\$2,010,022</b>	backfill and grade FAC Ponds 1/2, 3, and 5	
<b>6.02.25 Seed/Fertilize FAC 1/2 3 &amp; 5</b>							
FAC Pond 1/2 Surface Area	309.3	MSF	n/a			soil prep prod' rate = 33K sf/day (0.75 ac/day); seed/fert prod'n rate = 80K sf/day (1.8 ac/day) 7.1 acres	
FAC Pond 3 Surface Area	575.0	MSF	n/a			13.2 acres	
FAC Pond 5 Surface Area	326.7	MSF	n/a			7.5 acres	
Soil Preparation	0.0	MSF	\$0.00	\$0	\$0	Not necessary	
Seeding & Fertilizing	1211.0	MSF	\$73.97	\$89,578	\$89,578	1211 MSF	2004 DEC Rate * Implicit Deflator
Subt - Seed/Fert FACs 1/2, 3, & 5				<b>\$89,578</b>	<b>\$89,578</b>	seeding and fertilizing FAC Ponds 1/2, 3, and 5	
(Subt: Assemblies 6.02.25)				<b>\$89,578</b>	<b>\$89,578</b>	seeding and fertilizing FAC Ponds 1/2, 3, and 5	
<b>6.02.26 GW Well Monitoring</b>							
Technician	26.0	hours	\$38.00	\$988	\$988	production = 0.5 hours/sample for two techs 26.0 samp @ 0.5 hrs/samp = 13.0 hours @ 2 units/crew = 26.0 hours	technician rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	26.0	samp	\$25.00	\$650	\$650	26.0 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	26.0	samp	\$105.00	\$2,730	\$2,730	26.0 points @ 1.0 sampls/pt = 26.0 samples	analytical price: average of three quotes
Subt - GW Well Monitoring				<b>\$4,368</b>	<b>\$4,368</b>	monitoring of ten (10) monitoring wells (plus three QA blanks/duplicates) - two events during one year closure	
(Subt: Assemblies 6.02.26)				<b>\$4,368</b>	<b>\$4,368</b>		
Total Non-Super hours	7780.7						
<b>6.02.27 PPE Usage &amp; H&amp;S Planning</b>							
PPE Usage - Level D	729.5	days	\$0.00	\$0	\$0	Level C @ 0%; Level Mod C @ 25%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs 7780.7 hours @ 8 hr/day = 972.6 days @ 75% "D" days = 729.5 days	Standard Work Clothes - Site Experience
PPE Usage - Mod Level C	243.1	days	\$9.00	\$2,188	\$2,188	7780.7 hours @ 8 hr/day = 972.6 days @ 25% "C" days = 243.1 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	0.0	days	\$25.00	\$0	\$0	7780.7 hours @ 8 hr/day = 972.6 days @ 0% "C" days = 0.0 days	0% of non-supv hrs in Level C (price: \$25/day)
Health & Safety Officer	194.5	hours	\$75.00	\$14,588	\$14,588	7780.7 hours @ 2.5% hr/hr = 194.5 hours	Safety Eng Rate: rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$16,775</b>	<b>\$16,775</b>		
<b>6.02.28 Supervision</b>							
Foreman	1040.0	hours	\$65.00	\$67,600	\$67,600	26 weeks for closure of FAC Ponds 26 weeks @ 40 hrs/wk = 1040.0 hours	Foreman rate 2011 3rd party quote
Site Project Manager	0.0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$67,600</b>	<b>\$67,600</b>		
<b>6.02.29 Certification</b>							
Engineer	116.7	hours	\$130.00	\$15,171	\$15,171	Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory labor hours for all tasks 7780.7 hours @ 0.015 hr/hr = 116.7 hours	Engineer rate: 2011 3rd party quote
Clerical	116.7	hours	\$45.00	\$5,252	\$5,252	7780.7 hours @ 0.015 hr/hr = 116.7 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				<b>\$20,423</b>	<b>\$20,423</b>		
(Subt: Assemblies 6.02.27 thru 6.02.29)				<b>\$104,798</b>	<b>\$104,798</b>	supervision, health & safety, and certification	
<b>6.02 Fac Ponds</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$6,920,591</b>	<b>\$3,137,594</b>		

<b>6.02 Fac Ponds (Fac 1&amp;2, 3, and New 5)</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$6,920,591	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$484,441	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$276,824	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$415,235	note: DEC uses 6%
Engineering During Construction	2.00%	\$138,412	note: DEC uses 2%
General Contractor Profit	6.00%	\$415,235	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$1,730,148	
<b>Subt: Fac Ponds</b>		\$8,650,739	
<b>Plus Contingency</b>	10.00%	\$865,074	CWM and DEC 10%
<b>Tot: Fac Ponds</b>		\$9,515,813	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References	
<b>6.03.1 Inventory Verification</b>								
						production rate: 0.5 hour/pond to take depth estimate and estimate volume; two persons required		
Laborer	2.0	hours	\$39.00	\$78	\$78	2 ponds @ 0.5 hr/pond = 1.0 hours @ 2 units/crew = 2.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote	
Subtotal - Inventory Verification <i>(Subt: Assemblies 6.03.1)</i>				<b>\$78</b>	<b>\$78</b>			
				<b>\$78</b>	<b>\$78</b>	inventory of liquid volumes in Ponds 1/2 & 5		
<b>6.03.2 Ponds' Sampling &amp; Analysis</b>								
<i>Batch Sampling Events</i>							production rate = 2.0 hours per composite sample for a three-person crew	
Technician	36.0	hours	\$38.00	\$1,368	\$1,368	2 events @ 3 samp/evnt= 6 samples	sampling & analysis prior to pond discharge	
Sampling Equipment	12.0	hours	\$25.00	\$300	\$300	6 samp @ 2.0 hrs/samp = 12.0 hours @ 3 units/crew = 36.0 hours	technician rate: rate 2011 3rd party quote	
Sampling Supplies	6.0	samp	\$25.00	\$150	\$150	6 samples @ 2.0 hrs/samp = 12.0 hours @ 1 units/crew = 12.0 hours	boat, samplers, meters, etc.	
pH	6.0	samp	\$10.67	\$64	\$64	6 samples	bottles, shipping supplies	
Specific Conductance	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes	
Temperature	6.0	samp	-	\$0	\$0	6 samples obtained using field equipment	analytical price: average of three quotes	
Dissolved Oxygen	6.0	samp	-	\$0	\$0	6 samples obtained using field equipment	Obtained using field equipment	
Total Dissolved solids (TDS)	6.0	samp	\$15.00	\$90	\$90	6 samples	Obtained using field equipment	
TDVS (total dissolved volatile solids)	6.0	samp	\$23.33	\$140	\$140	6 samples	analytical price: average of three quotes	
Alkalinity as CaCO3	6.0	samp	\$15.33	\$92	\$92	6 samples	analytical price: average of three quotes	
TOC	6.0	samp	\$31.67	\$190	\$190	6 samples	analytical price: average of three quotes	
Ca/Mg Hardness (200.7)	6.0	samp	\$24.33	\$146	\$146	6 samples	analytical price: average of three quotes	
Total Suspended Solids (TSS)	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes	
Settleable Solids	6.0	samp	\$13.33	\$80	\$80	6 samples	analytical price: average of three quotes	
Ammonia (NH3)	6.0	samp	\$22.67	\$136	\$136	6 samples	analytical price: average of three quotes	
Phosphorous	6.0	samp	\$20.00	\$120	\$120	6 samples	analytical price: average of three quotes	
TON (TKN-NH3)	6.0	samp	\$41.67	\$250	\$250	6 samples	analytical price: average of three quotes	
Cyanide	6.0	samp	\$35.00	\$210	\$210	6 samples	analytical price: average of three quotes	
Sulfates	6.0	samp	\$21.00	\$126	\$126	6 samples	analytical price: average of three quotes	
Sulfides	6.0	samp	\$25.00	\$150	\$150	6 samples	analytical price: average of three quotes	
Surfactants (MBAS)	6.0	samp	\$28.33	\$170	\$170	6 samples	analytical price: average of three quotes	
BOD-5	6.0	samp	\$30.00	\$180	\$180	6 samples	analytical price: average of three quotes	
Fluoride	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes	
Chlorine	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes	
Residual Chlorine	6.0	samp	\$15.00	\$90	\$90	6 samples	analytical price: average of three quotes	
NO2	6.0	samp	\$21.00	\$126	\$126	6 samples	analytical price: average of three quotes	
NO3	6.0	samp	\$19.33	\$116	\$116	6 samples	analytical price: average of three quotes	
VOCs (624)	6.0	samp	\$105.00	\$630	\$630	6 samples	analytical price: average of three quotes	
Semi-volatile organics (625)	6.0	samp	\$208.33	\$1,250	\$1,250	6 samples	analytical price: average of three quotes	
Pesticides/PCBs (608) (MDL 65 PPT (ng/l))	6.0	samp	\$133.33	\$800	\$800	6 samples	analytical price: average of three quotes	
Oil & Grease (1631)	6.0	samp	\$21.67	\$130	\$130	6 samples	analytical price: average of three quotes	
total Phenols	6.0	samp	\$26.67	\$160	\$160	6 samples	analytical price: average of three quotes	
Priority Pollutant Metals (200.7) *	6.0	samp	\$188.00	\$1,128	\$1,128	6 samples	analytical price: average of three quotes	
Mercury (245.1)	6.0	samp	\$25.00	\$150	\$150	6 samples	analytical price: average of three quotes	
Mercury (1631B)	6.0	samp	\$111.67	\$670	\$670	6 samples	analytical price: average of three quotes	
Acute Toxicity/Bioassy	2.0	samp	\$3,800.00	\$7,600	\$7,600	2 samples	analytical price: average of three quotes	
Subt - Ponds' Sampling & Analysis				<b>\$17,204</b>	<b>\$17,204</b>	two pond discharges (batches) requiring sampling & analysis	One quote: actual cost for 2010 Fac Pond 8 out of service empty	

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.03.3 S&amp;A Certification &amp; Report</b>							
						one event per year for divers to check discharge pipe; two 40-hour pre-discharge qualification reports	
Divers (Sr. Technicians)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
SCBA Gear (2 units)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Laborer (Surface Support)	0.0	hours	\$0.00	\$0	\$0	Included in underwater inspection below	
Underwater Inspection	1.0	each	\$4,000.00	\$4,000	\$4,000	\$4,000 per event @ 1 event per year	Based on 2010 site rate of \$3,500
Engineer (Report)	80.0	hours	\$130.00	\$10,400	\$10,400	2 events @ 40 hrs/event = 80.0 hours @ 1 units/crew = 80.0 hours	Eng Rate: rate 2011 3rd party quote
Subt - S&A Cert'n & Report				\$14,400	\$14,400	diver(s) to check discharge pipe; also engineer's pre-discharge qualification report	Fac Pond 8 out of service empty
(Subt: Assemblies 6.03.2 thru 6.03.3)				\$31,604	\$31,604		
<b>6.03.4 Empty (Pump) FAC Pond 1/2</b>							
						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
FAC Pond 1/2 Inventory in Gallons	22881000.0	gals	n/a			381.4 total hours req'd to pump	Fac Pond 1/2 = 22,881,000 gallons
AWTS Tech'n (8-hr day shift/straight time)	190.7	day hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (day shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	190.7	nite hrs	\$65.00	\$12,396	\$12,396	381.4 tot hrs @ 50% (night shift) = 190.7 hours @ 1 units/crew = 190.7 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.25 below	
Maintenance (day shift only)	114.4	day hrs	\$45.00	\$5,148	\$5,148	381.4 tot hrs @ 30% (total hrs) = 114.4 hours @ 1 units/crew = 114.4 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	38.1	day hrs	\$38.00	\$1,448	\$1,448	381.4 tot hrs @ 10% (total hrs) = 38.1 hours @ 1 units/crew = 38.1 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.25 below	
Settleable Solids	95.4	samp	\$13.33	\$1,272	\$1,272	381.4 tot hrs @ 1 samp/4.0 hrs = 95.4 samples	analytical price: average of three quotes
Dissolved Oxygen	1.7	samp	-	\$0	\$0	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples	Field Measurement
Sulfide (total)	1.7	samp	\$25.00	\$43	\$43	381.4 tot hrs @ 1 samp/2 wks = 1.7 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	381.4	total hrs	\$12.34	\$4,706	\$4,706	381.4 tot hrs @ 100% total time = 381.4 hours @ 1 units/crew = 381.4 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/3,000 LF)	1144050.0	foot-hrs	\$0.0110	\$12,585	\$12,585	381.4 tot hrs @ 100% total time = 381.4 hours @ 3000 LF/crew = 1144050 foot-hrs	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 1/2				\$49,992	\$49,992	transfer contents of FAC Pond 1/2 to discharge pipe to Niagara River (3,000 ft)	
<b>6.03.5 Transfer (Pump) FAC Pond 5</b>							
						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
FAC Pond 5 Inventory in Gallons	24700000.0	gals	n/a			412 total hours req'd to pump	Fac Pond 5 = 24,700,000 gallons
AWTS Tech'n (8-hr day shift/straight time)	206.0	day hrs	\$65.00	\$13,390	\$13,390	412 tot hrs @ 50% (day shift) = 206 hours @ 1 units/crew = 206 hours	technician rate: rate 2011 3rd party quote
AWTS Tech'n (8-hr night shift/straight time)	206.0	nite hrs	\$65.00	\$13,390	\$13,390	412 tot hrs @ 50% (night shift) = 206 hours @ 1 units/crew = 206 hours	technician rate: rate 2011 3rd party quote
AWTS Supervisor (day shift only)		day hrs	\$85.00	\$0	\$0	Supervisor included in 6.01.28 below	
Maintenance (day shift only)	123.6	day hrs	\$45.00	\$5,562	\$5,562	412 tot hrs @ 30% (total hrs) = 123.6 hours @ 1 units/crew = 123.6 hours	maintenance rate: rate 2011 3rd party quote
Tech/Sampler (day shift only)	41.2	day hrs	\$38.00	\$1,566	\$1,566	412 tot hrs @ 10% (total hrs) = 41.2 hours @ 1 units/crew = 41.2 hours	technician rate: rate 2011 3rd party quote
Engineer (day shift only)		day hrs	\$90.00	\$0	\$0	Engineer included in 6.01.28 below	
Settleable Solids	103.0	samp	\$13.33	\$1,373	\$1,373	412 hours @ 1.0 sample per 4.0 hours = 103 samples	analytical price: average of three quotes
Dissolved Oxygen	5.2	samp	-	\$0	\$0	412 hours @ 1.0 sample per 80.0 hours = 5.2 samples	Field Measurement
Sulfide (total)	5.2	samp	\$25.00	\$130	\$130	412 hours @ 1.0 sample per 80.0 hours = 5.2 samples	analytical price: average of three quotes
Discharge Pump (6"/1,000 gal/min)	412.0	total hrs	\$12.34	\$5,084	\$5,084	412 tot hrs @ 100% total time = 412 hours @ 1 units/crew = 412 hours	RSM/HC p. 475 (line item 01 54 33 70 1300)
Discharge Pipe (6" Diam/3,000 LF)	1236000.0	foot-hrs	\$0.0110	\$13,596	\$13,596	412 tot hrs @ 100% total time = 412 hours @ 3000 LF/crew = 1236000 foot-hrs	RSM/HC p. 475 (line item 01 54 33 70 0300)
Subtotal - Pump FAC Pond 5				\$54,091	\$54,091	transfer contents of FAC Pond 5 to discharge pipe to Niagara River (3,000 ft)	
<b>6.03.6 Empty (Pump) FAC Pond 3</b>							
						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	
Subtotal - Pump FAC Pond 3				\$0	\$0	FAC Pond 3 assumed clean closed. Precipitation that enters impoundment managed as stormwater	
(Subt: Assemblies 6.03.4 thru 6.03.6)				\$104,083	\$104,083		

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.03.7 Remove Fac Pond 5 Liner System</b>							
<b>FAC Pond 5 Ballast Area in SF x 1' dp</b>	2795.0	CY	n/a			<b>Ballast area assume 1.73 acres</b> 75,471 SF * 1ft. Depth / 27 = 2795 CY	
Laborer	28.0	hours	\$39.00	\$1,092	\$1,092	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	28.0	hours	\$45.00	\$1,260	\$1,260	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	28.0	hours	\$84.09	\$2,355	\$2,355	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	28.0	hours	\$45.00	\$0	\$1,260	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load) Onsite Disposal	28.0	hours	\$24.78	\$0	\$694	2,795 CY @ 100 CY/hr = 28.0 hours @ 1 units/crew = 28.0 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Offsite Transportation - Ballast	1034.0	miles	\$3.25	\$3,361	\$0	4136.6 tons @ 20 tons/load = 206.8 loads @ 5 miles/trip = 1034 miles	Rate: transporters quote/site experience
Offsite Disposal - FAC 5 Ballast	4136.6	tons	\$27.00	\$111,688	\$0	Assume non-hazardous material 2795 CY * 1.48 ton/CY = 4136.6 tons	1.48 ton/CY industry standard for gravel.
Subtotal - Ballast Removal				<b>\$119,755</b>	<b>\$6,660</b>		Non-Haz Disposal/Site Experience
<b>Geosynthetic Footprint Area = 235,455 SF = 5.4 acres</b>							
<b>Fac Pond 5 Geo-synthetic Removal</b>	781836.0	SF	n/a			5.4 acres * 43,560 SF/Acre = 235,455 SF	
EIA Geomembrane Disposal	470910.0	SF	n/a			2 layers @ 5.4 acres 470,910 SF @ 0.22lb/SF = 51.8 tons	1 roll = 16,100SF = 3,500lbs = 0.22lb/SF
Geocomposite Disposal	235455.0	SF	n/a			1 layer @ 5.4 acres 235,455 SF @ 0.41lb/SF = 48.3 tons	1 roll = 2,200 SF = 900 lbs = 0.41lb/SF
Non-woven Geotextile Disposal	75471.0	SF	n/a			1.73 acres (Beneath Ballast) 75,471 SF @ 0.13lb/SF = 4.9 tons	1 roll = 4,500 SF = 600lbs = 0.13lb/SF
Laborer	156.4	hours	\$39.00	\$6,100	\$6,100	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	156.4	hours	\$45.00	\$7,038	\$7,038	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	156.4	hours	\$84.09	\$13,152	\$13,152	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	156.4	hours	\$45.00	\$0	\$7,038	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	156.4	hours	\$24.78	\$0	\$3,876	781,836 SF @ 5,000 SF/hr = 156.4 hours @ 1 units/crew = 156.4 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Offsite Transportation - Geosynthetics	43.8	miles	\$3.25	\$142	\$0	105 tons @ 12 tons/load = 8.75 loads @ 5 miles/trip = 43.75 miles	Rate: transporters quote/site experience
Offsite Disposal - FAC 5 Geosynthetics	105.0	tons	\$27.00	\$2,835	\$0	781,836 SF = 105 tons	Non-Haz Disposal/Site Experience
Subtotal - Geosynthetic Removal				<b>\$29,266</b>	<b>\$37,203</b>		
(Subt: Assemblies 6.03.7)				<b>\$149,022</b>	<b>\$43,863</b>		
<b>6.03.8 Soil/Sed S&amp;A - FAC Pond 1/2</b>							
<b>FAC Pond 1/2 Area in SF</b>	187500.0	SF	n/a			<b>18.8 areas = 19 grids: 38 metals 2 hazardous 17 organ</b>	Fac Pond 1/2 = 187,500 SF; grids @ 100' x 100'
Technician	114.0	hours	\$38.00	\$4,332	\$4,332	57 samps @ 1 hrs/samp = 57.0 hours @ 2 units/crew = 114.0 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	57.0	samp	\$10.00	\$570	\$570	57 samples	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	17.0	samp	\$615.00	\$10,455	\$10,455	17 samples	analytical price: average of three quotes
Priority Pollutant Metals	38.0	samp	\$158.33	\$6,017	\$6,017	38 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 1/2				<b>\$23,827</b>	<b>\$23,827</b>	sampling and analyses of FAC Pond 1/2 soils and sediments	
<b>6.03.9 Soil/Sed S&amp;A - FAC Pond 3</b>							
Subtotal - Soil/Sed S&A - FAC 3				<b>\$0</b>	<b>\$0</b>	Assumes NYSDEC approval of clean closure sampling and analyses of FAC Pond 3 soils and sediments completed for clean closure	
<b>6.03.10 Soil/Sed S&amp;A - FAC Pond 5</b>							
<b>FAC Pond 5 Area in SF</b>	235455.0	SF	n/a			<b>5.9 areas = 6 grids: 12 metals 2 hazardous 4 organ</b>	Fac Pond 5 = 235,455 SF; grids @ 200' x 200'
Technician	36.0	hours	\$38.00	\$1,368	\$1,368	18 samps @ 1 hrs/samp = 18 hours @ 2 units/crew = 36 hours	technician rate: rate 2011 3rd party quote
Sampling Supplies	18.0	samp	\$10.00	\$180	\$180	18 samps @ Sample counts per Fac Pond Closure Plan	bottles, shipping supplies
USEPA 40CFR Part 264 Append IX	2.0	samp	\$1,226.67	\$2,453	\$2,453	2 samples	analytical price: average of three quotes
Priority Poll'nt Organics (semi-VOC)	4.0	samp	\$615.00	\$2,460	\$2,460	7 samples	analytical price: average of three quotes
Priority Pollutant Metals	12.0	samp	\$158.33	\$1,900	\$1,900	18 samples	analytical price: average of three quotes
Subtotal - Soil/Sed S&A - FAC 5				<b>\$8,361</b>	<b>\$8,361</b>	sampling and analyses of FAC Pond 5 clay liner	
(Subt: Assemblies 6.03.8 thru 6.03.10)				<b>\$32,188</b>	<b>\$32,188</b>	sampling and analyses of soils and sediments from FAC Ponds 1/2 and 5	

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>6.03.11 Excavate Soil/Sed - FAC 1/2</b>						production rate = 100 CY/hour, includes loading & transport to stabilization:site experience	
<i>FAC Pond 1/2 Area in SF x 0.5' dp</i>	187500.0	SF	n/a			93750 CF = 3472 CY	
Laborer	34.7	hours	\$39.00	\$1,353	\$1,353	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	34.7	hours	\$84.09	\$2,918	\$2,918	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	34.7	hours	\$45.00	\$1,562	\$1,562	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	34.7	hours	\$24.78	\$860	\$860	3472.2 CY @ 100 CY/hr = 34.7 hours @ 1 units/crew = 34.7 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Excavate Soil/Sed - FAC 1/2				<b>\$8,254</b>	<b>\$8,254</b>	<i>excavate soils and sediments from FAC Pond 1/2</i>	
<b>6.03.12 Stabilize FAC Pond 1/2</b>						production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill	
<i>PROCESS TONS (incl kiln dust)</i>	5390.6	TONS	n/a			3472 CY @ 1.35 ton/CY + 15% kiln dust = 5390.6 tons	1 CY = 2,700# (1.35 ton) @ 100# per CF
Dump Truck (12-ton load)	53.9	hours	24.78	\$1,336	\$1,336	5390.6 tons @ 100 tons/hr @ 53.9 hours @ 1 units/crew = 53.9 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Cement Kiln Dust - Mat'l&Delv Cost	703.1	tons	\$48.00	\$33,749	\$33,749	3472 CY @ 1.35 ton/CY @ 15% kiln dust = 703.1 tons	CWM actual 2011 costs
Stabilization Cost	4687.2	tons	\$25.00	\$117,180	\$117,180	3472 CY @ 1.35 ton/CY = 4687.2 tons	CWM actual 2011 costs inc. labor & equipment
TCLP (Metals/VOCs/Semi-VOCs)	1.3	each	\$446.67	\$581	\$581	53.9 hours @ 1 test/40 hr = 1.3 tests	analytical price: average of three quotes
Subt - Stabilize FAC Pond 1/2				<b>\$152,845</b>	<b>\$152,845</b>	<i>stabilize soils and sediments from FAC Pond 1/2</i>	
<b>6.03.13 Transp FAC 1/2: Offsite Disp</b>						production rate = 0.5 hours/rolloff for on-site travel	
Offsite Transportation - Solids	103757.5	miles	\$3.25	\$337,212	\$0	5390.6 tons @ 20 tons/load = 269.5 loads @ 385 miles/trip = 103757.5 miles	Rate: transporters quote/site experience
Subt - FAC 1/2 to Offsite Landfill				<b>\$337,212</b>	<b>\$0</b>	<i>transport soils &amp; sediments from FAC Pond 1/2 to offsite landfill</i>	
<b>6.03.14 Transp/Unload FAC 1/2: Onsite Disp</b>						production rate = 0.5 hours for onsite travel	
Driver	224.6	hours	\$45.00	\$0	\$10,107	5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	224.6	hours	\$24.78	\$0	\$5,566	5390.6 tons @ 12 tons/load = 449.2 loads @ 0.5 hours/trip = 224.6 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - FAC 1/2 to Onsite Landfill				<b>\$0</b>	<b>\$15,673</b>	<i>onsite disposal of stabilized sediment</i>	
<b>6.03.15 Offsite FAC 1/2 Disposal</b>						if onsite landfill capacity not available	
Offsite Disposal - FAC 1/2 Soil/Sed	5390.6	tons	\$133.00	\$716,950	\$0	5390.6 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Landfill Disposal				<b>\$716,950</b>	<b>\$0</b>	<i>offsite disposal of soils &amp; sediments from FAC Pond 1/2</i>	
<i>(Subt: Assemblies 6.03.11 thru 6.03.15)</i>				<b>\$1,215,261</b>	<b>\$176,772</b>	<i>excavation, stabilization, and T&amp;D for FAC Pond 1/2 soils &amp; sediments</i>	
<b>6.03.16 Excavate Soil/Sed - FAC 3</b>						production rate = 100 CY/hour, includes loading & transport to stabilization:site experience	<b>Assumes Sitewide Permit Modified for construction of RMU-2</b>
Subt - Excavate Soil/Sed - FAC 3				<b>\$0</b>	<b>\$0</b>	<i>excavate soils and sediments from FAC Pond 3 not necessary</i>	
<b>6.03.17 Stabilize FAC Pond 3</b>						production rate = 100 tons/hour = 800 tons/day; includes loading for transport to landfill	
Subt - Stabilize FAC Pond 3				<b>\$0</b>	<b>\$0</b>	<i>stabilize soils and sediments from FAC Pond 3 not necessary</i>	
<b>6.03.18 Transp FAC 3: Offsite Disp</b>						production rate = 0.5 hours/rolloff for on-site travel	
Subt - FAC 3 to Offsite Landfill				<b>\$0</b>	<b>\$0</b>	<i>transport soils &amp; sediments from FAC Pond 3 to offsite landfill not necessary</i>	
<b>6.03.19 Transp/Unload FAC 3: Onsite Disp</b>						production rate = 0.5 hours for onsite travel	
Subt - FAC 3 to Onsite Landfill				<b>\$0</b>	<b>\$0</b>	<i>onsite disposal of stabilized sediment not necessary</i>	
<b>6.03.20 Offsite FAC 3 Disposal</b>						in-house estimate = \$0 for on-site disposal	
Subt - Offsite Landfill Disposal				<b>\$0</b>	<b>\$0</b>	<i>backfill and grade FAC Pond 3 not necessary. Area used for Cells 17, 18, &amp; 19 of RMU-2</i>	
<i>(Subt: Assemblies 6.03.16 thru 6.03.20)</i>				<b>\$0</b>	<b>\$0</b>	<i>excavation, stabilization, and T&amp;D for FAC Pond 3 soils &amp; sediments</i>	
<b>6.03.21 Excavate Soil - FAC 5</b>							
<i>(Subt: Assemblies 6.03.21)</i>				<b>\$0</b>	<b>\$0</b>	<i>Fac Pond 5 Clay liner assumed to be clean and left in place</i>	

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>6.03.22 Backfill/Grade - FAC 1/2</b>						production rate = 200 CY/hour, site experience w/ 2 dozers; 11,000 CY onsite soil/clay available from berms	
<i>FAC Pond 1/2 Backfill Volume</i>	31250.0	CY	n/a			<i>31250 CY minus 11000 CY onsite = 20250 CY borrow</i>	
Laborer	156.3	hours	\$39.00	\$6,094	\$6,094	31250 CY @ 200 CY/hr = 156.25 hours @ 1 units/crew = 156.25 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	312.5	hours	\$45.00	\$14,063	\$14,063	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	312.5	hours	\$56.38	\$17,619	\$17,619	31250 CY @ 200 CY/hr = 156.25 hours @ 2 units/crew = 312.5 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	20250.0	CY	\$11.00	\$222,750	\$222,750	20250 CY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 1/2				<b>\$260,525</b>	<b>\$260,525</b>	<i>backfill and grade FAC Pond 1/2</i>	
<b>6.03.23 Backfill/Grade - FAC 3</b>							
Subt - Backfill/Grade - FAC 3				<b>\$0</b>	<b>\$0</b>	<i>FAC Pond 3 will not be backfilled due to RMU-2 expansion.</i>	
<b>6.03.24 Backfill/Grade - FAC 5</b>						berms	
<i>FAC Pond 5 Backfill Volume</i>	58550.0	CY	n/a			<i>58550 CY onsite berm material</i>	
Laborer	292.8	hours	\$39.00	\$11,419	\$11,419	58550 CY @ 200 CY/hr = 292.8 hours @ 1 units/crew = 292.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	585.6	hours	\$45.00	\$26,352	\$26,352	58550 CY @ 200 CY/hr = 292.8 hours @ 2 units/crew = 585.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	585.6	hours	\$56.38	\$33,016	\$33,016	58550 CY @ 200 CY/hr = 292.8 hours @ 2 units/crew = 585.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Offsite Borrow - Material & Delivery Cost	0.0	CY	\$11.00	\$0	\$0	Assumes only on-site materials will be used.	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Backfill/Grade - FAC 5				<b>\$70,787</b>	<b>\$70,787</b>	<i>backfill and grade FAC Pond 5</i>	
<i>(Subt: Assemblies 6.03.22 thru 6.03.24)</i>				<b>\$331,312</b>	<b>\$331,312</b>	<i>backfill and grade FAC Ponds 1/2 and 5</i>	

<b>6.03.25 Seed/Fertilize FAC 1/2 &amp; 5</b>						soil prep prod' rate = 33K sf/day (0.75 ac/day); seed/fert prod'n rate = 80K sf/day (1.8 ac/day)	
<i>FAC Pond 1/2 Surface Area</i>	309.3	MSF	n/a			<i>7.1 acres</i>	
<i>FAC Pond 3 Surface Area</i>	0.0	MSF	n/a			<i>0 acres</i>	<b>FAC Pond 3 will not need seed/fert due to RMU-2 expansion</b>
<i>FAC Pond 5 Surface Area</i>	326.7	MSF	n/a			<i>7.5 acres</i>	
Soil Preparation	0.0	MSF	\$0.00	\$0	\$0	Not necessary	
Seeding & Fertilizing	636.0	MSF	\$73.97	\$47,045	\$47,045	636 MSF	2004 DEC Rate * Implicit Deflator
Subt - Seed/Fert FACs 1/2 & 5				<b>\$47,045</b>	<b>\$47,045</b>	<i>seeding and fertilizing FAC Ponds 1/2 and 5</i>	
<i>(Subt: Assemblies 6.03.25)</i>				<b>\$47,045</b>	<b>\$47,045</b>	<i>seeding and fertilizing FAC Ponds 1/2 and 5</i>	

<b>6.03.26 GW Well Monitoring</b>						production = 0.5 hours/sample for two techs	
Technician	20.0	hours	\$38.00	\$760	\$760	20.0 samp @ 0.5 hrs/samp = 10.0 hours @ 2 units/crew = 20.0 hours	technician rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	20.0	samp	\$25.00	\$500	\$500	20.0 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	20.0	samp	\$105.00	\$2,100	\$2,100	20.0 points @ 1.0 sampls/pt = 20.0 samples	analytical price: average of three quotes
Subt - GW Well Monitoring				<b>\$3,360</b>	<b>\$3,360</b>	<i>monitoring of seven monitoring wells (plus three QA blanks/duplicates) - two events during one year</i>	
<i>(Subt: Assemblies 6.03.26)</i>				<b>\$3,360</b>	<b>\$3,360</b>	<i>closure</i>	

Total Non-Super hours 3547.8

<b>6.03.27 PPE Usage &amp; H&amp;S Planning</b>						Level C @ 0%; Level Mod C @ 25%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	332.6	days	\$0.00	\$0	\$0	3547.8 hours @ 8 hr/day = 443.5 days @ 75% "D" days = 332.6 days	Standard Work Clothes - Site Experience
PPE Usage - Mod Level C	110.9	days	\$9.00	\$998	\$998	3547.8 hours @ 8 hr/day = 443.5 days @ 25% "C" days = 110.9 days	25% of non-supv hrs in Mod Level C (price: \$9/day)
PPE Usage - Level C	0.0	days	\$25.00	\$0	\$0	3547.8 hours @ 8 hr/day = 443.5 days @ 0% "C" days = 0.0 days	0% of non-supv hrs in Level C (price: \$25/day)
Health & Safety Officer	88.7	hours	\$75.00	\$6,653	\$6,653	3547.8 hours @ 2.5% hr/hr = 88.7 hours	Safety Eng Rate: rate 2011 3rd party quote

**6.03 Fac Ponds (Fac 1&2, 3, and New 5)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
Subt - PPE Usage/H&S Planning				\$7,651	\$7,651		
<b>6.03.28 Supervision</b>						18 weeks for closure of FAC Ponds	
Foreman	720.0	hours	\$65.00	\$46,800	\$46,800	18 weeks @ 40 hrs/wk = 720 hours	Foreman rate 2011 3rd party quote
Site Project Manager	0.0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				\$46,800	\$46,800		
<b>6.03.29 Certification</b>						Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory labor hours for all tasks	
Engineer	53.2	hours	\$130.00	\$6,916	\$6,916	3547.8 hours @ 0.015 hr/hr = 53.2 hours	Engineer rate: 2011 3rd party quote
Clerical	53.2	hours	\$45.00	\$2,394	\$2,394	3547.8 hours @ 0.015 hr/hr = 53.2 hours	Clerical rate: 2011 3rd party quote
Subtotal - Certification				\$9,310	\$9,310		
(Subt: Assemblies 6.03.27 thru 6.03.29)				\$63,761	\$63,761	supervision, health & safety, and certification	
<b>6.03 Fac Ponds</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$1,828,692</b>	<b>\$790,202</b>		

<b>6.03 Fac Ponds (Fac 1&amp;2 and New 5)</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$1,828,692	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$128,008	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$73,148	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$109,721	note: DEC uses 6%
Engineering During Construction	2.00%	\$36,574	note: DEC uses 2%
General Contractor Profit	6.00%	\$109,721	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	25.00%	\$457,173	
<b>Subt: Fac Ponds</b>		\$2,285,864	
<b>Plus Contingency</b>	10.00%	\$228,586	CWM and DEC 10%
<b>Tot: Fac Ponds</b>		\$2,514,451	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**8.01 CSA New Full Trail Parking 5 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>8.01.1 Inventory Verification</b>							
Laborer	1.25	hours	\$39.00	\$49	\$49	prod'n rates: 8 tankers or rollofs/hour/crew; two persons required; 5 tankers @ 0.125 hr/tanker = 0.625 hours @ 2 units/crew = 1.25 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification				\$49	\$49	area capacity is 24 tankers: 5 tanker proposed permit limit	However, unit only capable of storing 29 tankers
<b>8.01.2 Inventory Verification</b>							
Laborer	9.6	hours	\$39.00	\$374	\$374	prod'n rates: 8 tankers or rollofs/hour/crew; two persons required; 38 rollofs @ 0.125 hr/rolloff = 4.8 hours @ 2 units/crew = 9.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Inventory Verification				\$374	\$374	area capacity is 48 rollofs end to end	
(Subt: Assemblies 8.01.1 - 8.01.2)				\$423	\$423	conducting inventory of CSA 11 ( New Full Trailer Parking Area)	
<b>8.01.3 Offsite Transportation</b>							
Transport in 5,500-gal tanker	7645.0	miles	\$3.50	\$26,758	\$26,758	Five (5) 5,500-gal tankers parked at CSA 11 = 27,500 gals 27,500 gals @ 5500 gals/load = 5.0 loads @ 1529 miles/trip = 7645 miles	Rate: transporters quote/site experience
Offsite Transportation - Solids	14630.0	miles	\$3.25	\$47,548	\$0	608 tons @ 16 tons/load = 38.0 loads @ 385 miles/trip = 14630 miles	Rate: transporters quote/site experience
Subt - Offsite Transportation				\$74,305	\$26,758	assumes offsite disposal/incineration of liquid	
<b>8.01.4 Transp All Rollofs: Onsite Stab</b>							
Road Tractor (4 x 2, 30-ton)	6.3	hours	\$32.45	\$0	\$204	production rate = 10 mins/rolloff for on-site travel (all rollofs previously existing at site) 38 rollofs @ 1 rolloff/load = 38.0 loads @ 10 mins/trip = 6.3 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	6.3	hours	\$45.00	\$0	\$284	38 rollofs @ 1 rolloff/load = 38.0 loads @ 10 mins/trip = 6.3 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0.0	hours	\$19.02	\$0	\$0	0 rollofs @ 1 rolloff/load = 0.0 loads @ 0.5 hours/trip = 0.0 hours	dumpster RSM/BC p. 42 (02225-730-0800)
Subtotal -Transport Rollofs Onsite				\$0	\$488	assumes onsite stabilization and disposal	
<b>8.01.5 Stabilization (non-Macro mat'l)</b>							
PROCESS TONS (incl kiln dust)	699.0	TONS	n/a			prod'n rate = 100 tons/hour = 800 tons/day (non-Macro Room material); 30 CY roll = 16 tons 38 rollofs @ 30 CY each @ 16 tons/rolloff + 15% kiln dust = 699 tons	
Cement Kiln Dust - Mat'l&Delv Cost	91.0	tons	\$48.00	\$0	\$4,368		CWM actual 2011 costs
Stabilization Cost	608.0	tons	\$25.00	\$0	\$15,200		CWM actual 2011 costs inc. labor & equipment
TCLP Testing - RCRA (EPA 1311)	12.7	samp	\$348.33	\$0	\$4,424	38 rollofs @ 3 ro's/samp = 12.7 samples	average of 3 third party labs; one sample per 3 rollofs
Subt - Stabilization				\$0	\$23,992		
<b>8.01.6 Transp Rollofs to Onsite L'fill</b>							
Road Tractor (4 x 2, 30-ton)	9.5	hours	\$32.45	\$0	\$308	production rate = 0.25 hours for onsite travel 38 rollofs @ 1 rolloff/load = 38.0 loads @ 0.25 hours/trip = 9.5 hours	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	9.5	hours	\$45.00	\$0	\$428	38 rollofs @ 1 rolloff/load = 38.0 loads @ 0.25 hours/trip = 9.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0.0	hours	\$19.02	\$0	\$0		dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Transp RO's to Onsite Landfill				\$0	\$736	Assembly estimate assumes on-site disposal	
<b>8.01.7 Unload non-Macro Rollofs</b>							
Laborer	9.5	hours	\$39.00	\$0	\$371	production rate = 0.25 hours for unload in landfill 38 rollofs @ 1 rolloff/load = 38.0 loads @ 0.25 hours/trip = 9.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Backhoe (1 CY)	9.5	hours	\$19.18	\$0	\$182	38 rollofs @ 1 rolloff/load = 38.0 loads @ 0.25 hours/trip = 9.5 hours	RSM/HC p. 467 (line item 01 54 33 20 0460)
Equipment Operator (Medium)	9.5	hours	\$45.00	\$0	\$428	38 rollofs @ 1 rolloff/load = 38.0 loads @ 0.25 hours/trip = 9.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Rolloff (30-CY) (existing equip't)	0.0	hours	\$19.02	\$0	\$0		dumpster RSM/BC p. 42 (02225-730-0800)
Subt - Unload RO's at Onsite L'Fill				\$0	\$980		
<b>8.01.8 Offsite Disposal</b>							
Disposal Cost (Incin PCB Liquids)	27500.0	gallons	\$4.68	\$128,700	\$128,700	27,500 gallons	HWC/ETC 2004 & Current third party rate
Offsite Disp - Haz Rolloff Solids	608.0	tons	\$133.00	\$80,864	\$0	38 rollofs @ 30 CY each @ 16 tons/rolloff = 608 tons	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing based on current market conditions
Subt - Offsite Liquids Disposal				\$209,564	\$128,700		
(Subt: Assemblies 8.01.3 - 8.01.8)				\$283,869	\$181,653	disposal of bulk liquid PCB wastes from 5 tankers/38 rollofs	

**8.01 CSA New Full Trail Parking 5 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>8.01.9 Decon CSA 11 Area (wash)</b>							
						production rate = 105 SF/hr for 1-person crew w/ one unit each; facility experience	
Laborer	157.0	hours	\$39.00	\$6,123	\$6,123	16504 SF @ 105 SF/hr = 157 hours @ 1 pers/crew = 157 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Pressure Washer	157.0	hours	\$4.04	\$634	\$634	16504 SF @ 105 SF/hr = 157 hours @ 1 unit/crew = 157 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper	157.0	hours	\$3.41	\$535	\$535	16504 SF @ 105 SF/hr = 157 hours @ 1 unit/crew = 157 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - Decon CSA 11 Area (wash)				<b>\$7,293</b>	<b>\$7,293</b>		
<b>8.01.10 Decon CSA 11 Area (rinse)</b>							
						production rate = 105 SF/hr for 1-person crew w/ one unit each; facility experience	
Laborer	157.0	hours	\$39.00	\$6,123	\$6,123	16504 SF @ 105 SF/hr = 157 hours @ 1 pers/crew = 157 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Pressure Washer	157.0	hours	\$4.04	\$634	\$634	16504 SF @ 105 SF/hr = 157 hours @ 1 unit/crew = 157 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
Vacuum Sweeper	157.0	hours	\$3.41	\$535	\$535	16504 SF @ 105 SF/hr = 157 hours @ 1 unit/crew = 157 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - Decon CSA 11 Area (rinse)				<b>\$7,293</b>	<b>\$7,293</b>		
<b>8.01.11 Decon water samp/disp - N/A</b>							
						production rate = 0.5 hours/sample for two techs	
Technician	1.1	hours	\$38.00	\$42	\$42	1.1 samp @ 0.5 hr/samp = 0.6 hours @ 2 pers/crew = 1.1 hours	technician rate: rate 2011 3rd party quote
VOC Analysis (EPA 624)	1.1	samp	\$105.00	\$116	\$116	1.0 areas @ 1.1 samp/area = 1.1 samples	analytical price: average of three quotes
On-site Water Disposal	15000.0	gal	\$0.0313	\$470	\$470	15,000 gallons	facility o/s mild waste treat price ; vol @ 0.05 gal/sf (equip lit)
Subt - Decon Water Samp/Dispose				<b>\$627</b>	<b>\$627</b>		
<b>8.01.12 PCB Wipe Samples</b>							
						production rate = 0.5 hours/sample for two techs	
Technician	26.4	hours	\$38.00	\$1,003	\$1,003	26.4 samp @ 0.5 hr/samp = 13.2 hours @ 2 pers/crew = 26.4 hours	technician rate: rate 2011 3rd party quote
TCLP (Metals/VOCs/Semi-VOCs)	1.1	samp	\$446.67	\$491	\$491	1.0 areas @ 1.1 samp/area = 1.1 samples	analytical price: average of three quotes
PCB Analysis (SW 8081/8082)	26.4	samp	\$83.33	\$2,200	\$2,200	16504 SF @ 625 SF/samp = 26.4 samples	analytical price: average of three quotes
Subt - PCB Wipe/Destruct Samp				<b>\$3,694</b>	<b>\$3,694</b>		
(Subt: Assemblies 8.01.9 - 8.01.12)				<b>\$18,907</b>	<b>\$18,907</b>	decontamination & sampling of CSA 11 (New Full Parking Area)	
<b>8.01.13 Demolish Conc CSA 11</b>							
						prod'n rate = 8 CY/hr (site experience); 10" mesh reinf: 1 cf = 150#; 1 cy = 2 tons	
Laborer	52.9	hours	\$39.00	\$2,063	\$2,063	13750 SF @ 260 SF/hour 52.9 hours @ 1 units/crew = 52.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	105.8	hours	\$50.70	\$5,364	\$5,364	13750 SF @ 260 SF/hour 52.9 hours @ 2 units/crew = 105.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	105.8	hours	\$84.09	\$8,897	\$8,897	13750 SF @ 260 SF/hour 52.9 hours @ 2 units/crew = 105.8 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Hydraulic Hammer Attach (1,200#)	52.9	hours	\$20.59	\$1,089	\$1,089	13750 SF @ 260 SF/hour 52.9 hours @ 1 units/crew = 52.9 hours	RSM/HC p. 467 (line item 01 54 33 20 0349)
Claw Attachment	52.9	hours	\$2.47	\$131	\$131	13750 SF @ 260 SF/hour 52.9 hours @ 1 units/crew = 52.9 hours	RSM/HC p. 477 (line item 01 54 33 20 0345)
Loader	0.0	hours	\$30.03	\$0	\$0	not required	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dump Truck (12-ton load)	52.9	hours	\$24.78	\$1,311	\$1,311	13750 SF @ 260 SF/hour 52.9 hours @ 1 units/crew = 52.9 hours	RSM/HC p. 469 (line item 01 54 33 20 5250)
Welding Equipment	52.9	hours	\$5.41	\$286	\$286	13750 SF @ 260 SF/hour 52.9 hours @ 1 units/crew = 52.9 hours	RSM/HC p. 473 (line item 01 54 33 40 7800)
Subt - Demolish Conc CSA 11				<b>\$19,141</b>	<b>\$19,141</b>	509.2 CY @ 2 tons/CY = 1018.4 tons	Arcadis Drawing No. D-3A
<b>8.01.14 Transp/Unload debris to onsite landfi</b>							
						production rate = 0.5 hours for onsite travel	
Road Tractor (4 x 2, 30-ton)	0.0	hours	\$32.45	\$0	\$0	not required	RSM/HC p. 472 (line item 01 54 33 40 7410)
Driver	42.4	hours	\$45.00	\$0	\$1,908	1018.4 tons @ 12 tons/load = 84.9 loads 0.5 hours/trip = 42.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (12-ton load)	0.0	hours	\$24.78	\$0	\$0	Included in 8.01.13 rate above	RSM/HC p. 469 (line item 01 54 33 20 5250)
Subt - Transp Debris to onsite L'fill				<b>\$0</b>	<b>\$1,908</b>	onsite disposal of debris	

**8.01 CSA New Full Trail Parking 5 Tankers**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Offsite Disposal	2011 CWM Extended Price - Onsite Disposal	Basis of Production and Quantities for In-house Estimate	In-house Pricing References	
<b>8.01.15 Unload Demolition Debris</b>								
Laborer	0.0	hours	\$39.00	\$0	\$0	Included in 8.01.14 not required	loaded labor rate: loaded labor rate 2011 3rd party quote	
Equipment Operator (Medium)	0.0	hours	\$50.70	\$0	\$0	not required	loaded labor rate: loaded labor rate 2011 3rd party quote	
Loader	0.0	hours	\$30.03	\$0	\$0	not required	RSM/HC p. 469 (line item 01 54 33 20 4730)	
Dump Trailer (20 CY)	0.0	hours	\$5.20	\$0	\$0	not required	RSM/HC p. 469 (line item 01 54 33 20 5400)	
Subt - Unload Demo Debris				\$0	\$0			
<b>8.01.16 Offsite Conc Debris T&amp;D</b>								
Offsite Transportation - Debris	161.5	miles	\$3.25	\$525	\$0	assume off-site "D" disposal facility within 50 miles of facility; 1 CY = 32.5 SF of conc. @ 10" depth 509.2 CY @ 15 CY/load = 33.9 loads @ 5 miles/trip = 169.5 miles	Rate: transporters quote/site experience	
Offsite Disposal - Concrete Debris	1018.4	tons	\$35.00	\$35,644	\$0	509.2 CY @ 2 tons/CY = 1018.4 tons	Modern Disposal/Site Experience	
Subt - Offsite Conc Debris T&D				\$36,169	\$0			
(Subt: Assemblies 8.01.13 - 8.01.16)				\$55,310	\$21,049	off-site transport and disposal of demolition debris		
<b>8.01.17 Soils Samples</b>								
Technician	6.6	hours	\$38.00	\$251	\$251	production rate = 0.5 hours/sample for two techs 13750/2500 = 6.0 grids 6.6 samp @ 0.5 hr/samp = 3.3 hours @ 2 pers/crew = 6.6 hours	50' x 50' sample grids technician rate: rate 2011 3rd party quote	
VOC/PCB/Total Metals Analysis	6.6	samp	\$395.00	\$2,607	\$2,607	6.0 grid sq @ 1.1 samp/area = 6.6 samples	analytical price: average of three quotes	
Subt - Soil Samples				\$2,858	\$2,858			
(Subt: Assemblies 8.01.17 - 8.01.17)				\$2,858	\$2,858	soil sampling at CSA 11		
Total Non-Super hours		593.6						
<b>8.01.18 PPE Usage/H&amp;S Planning</b>								
PPE Usage - Level D	55.6	days	\$0.00	\$0	\$0	Level C @ 0%; Mod Level C @ 25%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs 593.6 hours @ 8 hr/day = 74.2 days @ 75% "D" days = 55.6 days	Standard Work Clothes - Site Experience	
PPE Usage - Mod Level C	18.6	days	\$9.00	\$167	\$167	593.6 hours @ 8 hr/day = 74.2 days @ 25% "Mod C" days = 18.6 days	25% of non-supv hrs in Mod Level C (price: \$9/day)	
PPE Usage - Level C	0.0	days	\$25.00	\$0	\$0	593.6 hours @ 8 hr/day = 74.2 days @ 0% "C" days = 0 days	0% of non-supv hrs in Level C (price: \$25/day)	
Safety Engineer	14.8	hours	\$75.00	\$1,110	\$1,110	593.6 hours @ 2.5% hr/hr = 14.8 hours	Safety Eng Rate: rate 2011 3rd party quote	
Subt - PPE Usage/H&S Planning				\$1,277	\$1,277			
<b>8.01.19 Supervision</b>								
Foreman	80.0	hours	\$65.00	\$5,200	\$5,200	2 weeks for closure of Full Trailer Parking closure 2 weeks @ 40 hrs/wk = 80.0 hours	Outside foreman rate: 2011 3rd party quote	
Site Project Manager	0.0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	Site Manager Rate: 2011 3rd party quote	
Subtotal - Supervision				\$5,200	\$5,200			
<b>8.01.20 Certification</b>								
Engineer	8.9	hours	\$130.00	\$1,157	\$1,157	Engineer @ 1.5% and Clerical @ 1.5% of total non-supervisory hours for all tasks 593.6 hours @ 0.015 hr/hr = 8.9 hours	Engineer rate: 2011 3rd party quote	
Clerical	8.9	hours	\$45.00	\$401	\$401	593.6 hours @ 0.015 hr/hr = 8.9 hours	Clerical rate: 2011 3rd party quote	
Subtotal - Certification				\$1,558	\$1,558			
(Subt: Assemblies 8.01.18 - 8.01.20)				\$8,035	\$8,035			
<b>8.01 CSA New Full Trail Parking 5 Tankers</b>	<b>Direct Cost</b>	<b>Total</b>	<b>Basic</b>	<b>\$369,401</b>	<b>\$232,924</b>			

<b>8.01 CSA 11 (New Full Trail Parking)</b>			
<b>Total Cost Summary</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost OffSite Disposal</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Disposal</b>		\$369,401	
Plus Indirect Costs/Profit:			
Site Activity Management Costs	7.00%	\$25,858	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$14,776	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$22,164	note: DEC uses 6%
Engineering During Construction	2.00%	\$7,388	note: DEC uses 2%
General Contractor Profit	6.00%	\$22,164	Note DEC adds 6%
<b>Indirect Costs/Basic Disposal</b>	<b>25.00%</b>	<b>\$92,350</b>	
<b>Subt: CSA 11 (SouthTrail Pkg)</b>		<b>\$461,751</b>	
<b>Plus Contingency</b>	<b>10.00%</b>	<b>\$46,175</b>	<b>CWM and DEC 10%</b>
<b>Total: CSA (New Full Trail Pkg)</b>		<b>\$507,926</b>	

**Cost References:**

"RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)

"RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)

"RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

**15.01 RMU-2 Landfill Closure (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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Waste Cover Area Parameters		38.5 acres = 1,677,060 SF = 186,340 SY	= 62,113 BCY @ 1' deep		Includes slope correction	
1-Cell Scenario (Cell 20)	6.9	6.9 acres = 300,564 SF = 33,396 SY	= 11,132 BCY @ 1' deep		= 5,566 BCY @ 0.5' deep	= 16,698 BCY @ 1.5' deep
2-Cell Scenario (Cells 18,20)	13.1	13.1 acres = 570,636 SF = 63,404 SY	= 21,135 BCY @ 1' deep		= 10,567 BCY @ 0.5' deep	= 31,702 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5	19.5 acres = 849,420 SF = 94,380 SY	= 31,460 BCY @ 1' deep		= 15,730 BCY @ 0.5' deep	= 47,190 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4	25.4 acres = 1,106,424 SF = 122,936 SY	= 40,979 BCY @ 1' deep		= 20,489 BCY @ 0.5' deep	= 61,468 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9	31.9 acres = 1,389,564 SF = 154,396 SY	= 51,465 BCY @ 1' deep		= 25,733 BCY @ 0.5' deep	= 77,198 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5	38.5 acres = 1,677,060 SF = 186,340 SY	= 62,113 BCY @ 1' deep		= 31,056 BCY @ 0.5' deep	= 93,170 CY @ 1.5' deep

Liner Feet of Separator Berm Converted to Perimeter Berm	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
1-Cell Scenario (Cell 20)	575	lf		445		BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material
2-Cell Scenario (Cells 18,20)	1490	lf		1300		
3-Cell Scenario (Cells 18,20,19)	1030	lf		960		
4-Cell Scenario (Cells 18,20,19,17)	575	lf		515		
5-Cell Scenario (Cells 18,20,19,17,16)	600	lf		500		
6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A	lf		N/A		

Separator Berm, Perimeter Berm, and Cut-Off-Wall Lengths from RMU-2 Permit Drawing No. 5  
 Perimeter Ditch 2,290 linear feet 585+585+560+560 = 2,290  
 Drainage Tile System 2,939 linear feet 6.9 acres \* 426 LF/acre = 2,939 LF  
 Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)

15.01.1 Convert Separator Berm to Perimeter Berm						
Perimeter Berm	575	lf	\$ 2,338.17	\$1,344,449	Includes 445 feet of Cut-Off-Wall and 575 feet of perimeter berm construction	Value taken from 15.01 Closure Cost, 15.A Berm tab.
Subt - Convert Separator Berm to Perimeter Berm			\$ 2,338.17	\$1,344,449		
(Subt: Assemblies 15.01.1)				\$1,344,449		

15.01.2 Final Waste Cover Grading						
Volume of Material to be Graded					production rate = 250 cy/hr - based upon max of 12 inch depth	
Waste Grading	6.9	acre	\$5,000.00	\$34,500	11132 BCY plus 25% comp fact = 13914 LCY x 0% offsite mat'l = 0 LCY	no add'l mat'l; levelling/grading of existing waste pile only
Subt - Grading Final Waste Cover				\$34,500	6.9 acres	Contractor Rates/Site experience
					BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	

15.01.3 Equipment Decontamination						
Laborer	48	hours	\$39.00	\$1,872	production rate = 4 hours per unit with 2 man crew: 6 pieces of equipment	
Cleaning Solvent	6	gal	\$4.00	\$24	6 units @ 4 hrs/unit = 24 hours @ 2 pers/crew = 48 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Pressure Washer	24	hours	\$4.04	\$97	6 units @ 1 gal/unit = 6 gallons	site experience
PCB Solids/Debris Transport	4.8	mile	\$3.50	\$17	6 units @ 4 hrs/unit = 24 hours @ 1 units/crew = 24 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
PCB Solids/Debris Disposal	1	drum	\$100.00	\$100	1 drum Solids/debris @ 80 drums/load = 0.0125 loads @ 385 miles/load = 4.8 miles	Rate: transporters quote/site experience
Subt - Equipment Decontamination				\$2,110	1 drum Solids/debris	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing

15.01.4 Decon Water Samp/Dispose						
Technician	1	hours	\$38.00	\$38	production rate = 0.5 hours/sample for two techs	
VOC Analysis (EPA 624)	1	samp	\$105.00	\$105	1.0 samp @ 0.5 hr/samp = 0.5 hours @ 2 pers/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
On-site Water Disposal	1200	gal	\$0.0313	\$38	1.0 areas @ 1.0 samp/area = 1.0 samples	analytical price: average of three quotes
Subt - Decon Water Samp/Disposal				\$181	6 units @ 200 gal/unit/wa = 1200 gallons	200 gallons per unit/site experience

**15.01 RMU-2 Landfill Closure (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.01.5 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs;2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.01.6 Perimeter Ditch Spreading</b>					Included in 15.01.7	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.01.7 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	
Subt - Compact Fin'l Cover/Ditch	2290	LF	\$12.00	<b>\$27,480</b>	Liner feet	2010 Average of two bids
<b>15.01.8 Final Cover/Ditch Inspection</b>					Included in CQA 15.01.28	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.01.2 thru 15.01.8)				<b>\$65,726</b>	<i>grading, compacting, &amp; inspecting final waste pile layer; decon &amp; testing of equipment</i>	<i>waste cover area</i>
<b>15.01.9 Grading Layer</b>					Based on 2009 Design & 6.9 acres to be closed	Grading layer 0.5 feet thick
General Fill	6958	CY	\$11.00	\$76,538	5,566 BCY plus 25% comp fact = 6,958 LCY x 100% offsite mat'l : 6,968 LCY	
General Fill Place/Compact	6958	CY	\$10.00	\$69,580	5,566 BCY plus 25% comp fact = 5,839 LCY x 100% offsite mat'l : 6,968 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	6.9	acre	\$10,000.00	\$69,000	6.9 acres	Site Experience
Subt - Grading Layer				<b>\$215,118</b>		
<b>15.01.10 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 6.9 acres to be closed	
GCL Material	375705	SF	\$0.46	\$172,824	300,564 SF plus 25% lap factor = 375,705 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	375705	SF	\$0.35	\$131,497	300,564 SF plus 25% lap factor = 375,705 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$304,321</b>		
(Subt: Assemblies 15.01.9 thru 15.01.10)				<b>\$519,439</b>	<i>spread and compact grading layer (0.5' offsite material) and install of impervious GCL</i>	<i>cap cover area</i>
<b>15.01.11 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	375705	SF	\$0.21	\$78,898	300,564 SF plus 25% lap factor = 375,705 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	375705	SF	\$0.46	\$172,824	300,564 SF plus 25% lap factor = 375,705 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$251,722</b>		
<b>15.01.12 Liner Anchor Trench</b>						
Anchor Trench	6.9	acres	\$1,000.00	\$6,900	6.9 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$6,900</b>	<i>includes labor &amp; equipment for trenching, backfilling, and compacting (3' x 1.5')</i>	
<b>15.01.13 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	375705	SF	\$0.38	\$142,768	300,564 SF plus 25% lap factor = 375,705 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	375705	SF	\$0.32	\$120,226	300,564 SF plus 25% lap factor = 375,705 SF	2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$262,994</b>		

**15.01 RMU-2 Landfill Closure (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.01.14 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.01.11; see assembly 15.01.28 for QA Monitoring	
Subt - Liner Testing			\$0	\$0	field testing crew required to work concurrently with liner placement crew in Assem 15.01.11	
(Subt: Assem 15.01.11 thru 15.01.14)				<b>\$521,616</b>	installing geosynthetics above impervious gcl layer	liner area: cap cover plus 25% lap factor
<b>15.01.15 Unclassified Fill</b>					depth = 1.5 feet (in one 18" lift) for final cover	
General Fill - offsite source	20872	LCY	\$11	\$229,592	16,698 BCY plus 25% comp fact = 20,872 LCY x 100% offsite mat'l : 20,872 LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$229,592</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.01.16 Compacting Unclassified Fill</b>					Compaction of one 1.5 feet lift	
Place/Spread/Compact Unclass. Fill	20872	LCY	\$10	\$208,720	16,698 BCY plus 25% comp fact = 20,872 LCY x 100% offsite mat'l : 20,872 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$208,720</b>		
<b>15.01.17 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				\$0	Included in Assem 15.01.28 QA/QC Monitoring	
<b>15.01.18 Unclassified Fill Test Fill</b>					Assume two sources of unclassified fill	
Test Fill Construction	1	each	\$12,000	\$12,000	1 test fill/source @ 1 source/6.9 acres = 1 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	1	each	\$8,000	\$8,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$20,000</b>		
(Subt: Assem 15.01.15 thru 15.01.18)				<b>\$458,312</b>	spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material	cap cover area
<b>15.01.19 Spreading Topsoil</b>					depth = 0.5 feet	
Topsoil	6958	LCY	\$15.00	\$104,370	5,566 BCY plus 25% comp fact = 6,958 LCY x 100% offsite mat'l : 6,958 LCY x	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	6958	LCY	\$11.00	\$76,538	5,566 BCY plus 25% comp fact = 6,958 LCY x 100% offsite mat'l : 6,958 LCY x	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$180,908</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	Includes hydroseeding/mulch/fertilizer
<b>15.01.20 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assem 15.01.19	
Erosion Control Matting	1956	SY	\$12.50	\$24,450	1,760 LF x 10 ft wide rolls = 17,600 SF / 9 SF/SY = 1,956 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$24,450</b>		Drainage Tile System
(Subt: Assem 15.01.19 thru 15.01.20)				<b>\$205,358</b>	placing topsoil and hydro seeding with mulch and fertilizer	cap cover area
<b>15.01.21 Downflume Installation</b>						
Rip Rap Downflume (grouted)	1	each	\$23,625.00	\$23,625	6.9 acres @ 1 downflume = 1 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$23,625</b>		
<b>15.01.22 Cap Drainage Syst Install'n</b>						
Install Cap Drainage System	2939	LF	\$15.06	\$44,261	6.9 acres 2,939 LF	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$44,261</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assem 15.01.21 thru 15.01.22)				<b>\$67,886</b>	downflume and drainage system installation	cap cover area

**15.01 RMU-2 Landfill Closure (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>15.01.23 Groundwater Monitoring</b>					production rate = 0.5 hours per sample for two techs; 9 wells; 1 events/6 months	
<b>Monit'g Events &amp; Samples/Event</b>					0.0 quart'ly + 8 semi-ann + 1.0 b-ann'l x 1.05 each = 8.9 samp	includes 5% QA sampling
Technician	8.9	hours	\$38.00	\$338	8.9 samp @ 0.5 hrs/samp = 4.45 hours @ 2 units/crew = 8.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	8.9	samp	\$25.00	\$223	8.9 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	8.9	samp	\$105.00	\$935		Average of three quotes
Subt - GW Mon During Closure				<b>\$1,495</b>	<i>groundwater monitoring for six (6) months</i>	
(Subt: Assembly 15.01.23)				<b>\$1,495</b>		

<b>15.01.24 Leachate Management</b>					leachate collected from surface and sub-surface projected to be mildly contaminated	
Onsite Aqueous Treatment	2962122	gals	\$0.0178	\$52,726	6.9 acres x 429,293 gal/acre = 2962122	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	0	kwh	\$0.10	\$0	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	4380	kwh	\$0.10	\$438	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pumps = 4,380 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 26,280 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	0.75	each	\$2,294.00	\$1,721	3 pumps x 25% factor = 0.75 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$71,806</b>	<i>leachate collection and management for twelve months</i>	

<b>15.01.25 Leachate Monitoring</b>					12 months of leachate monitoring	Sampling Frequency from Schedule I, Exhibit F, Condition G
Technician	12	hours	\$38.00	\$456	12 samp @ 0.5 hrs/samp = 6 hours @ 2 units/crew = 12 hours	
Sampling Supplies	12	samp	\$5.00	\$60	12 samples Included in unit rate	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	4.2	samp	\$105.00	\$441	4 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	2.1	samp	\$131.67	\$277	2 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 2.1 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	2.1	samp	\$155.00	\$326	2 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 2.1 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	4.2	samp	\$105.00	\$441	4 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	1.1	samp	\$633.33	\$697	1 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 1.1 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	1.1	samp	\$155.00	\$171	1 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 1.1 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	12.6	samp	\$15.00	\$189	12 samp/yr x 1 cell x 1.0 years 1.05 QA req't = 12.6 samples	analytical price: average of three quotes - permit specifications
Shipping	4.2	each	\$5.00	\$21		
Subt - Leachate Monitoring				<b>\$3,077</b>	<i>leachate collection and management for twelve months</i>	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.01.24 thru 15.01.25)				<b>\$74,883</b>		

**15.01 RMU-2 Landfill Closure (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References	
<b>15.01.26 PPE Usage &amp; H&amp;S Planning</b>					Level C during waste grading, grading layer installation, and decon only.		
PPE Usage - Level D	345	days	\$0.00	\$0	50 man days/ acre x 6.9 acres =	345 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C		
PPE Usage - Level C	69	days	\$25.00	\$1,725	5.0 days/acre x 6.9 acres x 2 crew =	69 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	82.8	hours	\$75.00	\$6,210	3312 hours @ 2.5% hr/hr =	82.8 hours	60 man days/acre * 8 hrs * 6.9 acres = 3036 hrs
Subt - PPE Usage/H&S Planning				<b>\$7,935</b>			
<b>15.01.27 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs		
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs		
Construction Management	6.9	acre	\$4,500.00	\$31,050	\$4,500 per acre @ 6.9 acres		
Subtotal - Supervision				<b>\$31,050</b>			
<b>15.01.28 QA/QC Monitoring/Certification</b>					300,564 SF plus 25% lap factor =	375,705 SF	
<i>Final Cover</i>							
GCL Conformance Testing	4.0	test	\$235.00	\$940	300,564 SF plus 25% lap factor = 375,705 SF @ 1 test/100000 SF =	4.0 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	4.0	test	\$98.00	\$392	300,564 SF plus 25% lap factor = 375,705 SF @ 1 test/100000 SF =	4.0 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	4.0	test	\$300.00	\$1,200	300,564 SF plus 25% lap factor = 375,705 SF @ 1 test/100000 SF =	4.0 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source		Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source		Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source		Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source		Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	6.9	acre	\$25,700.00	\$177,330	6.9 acres		Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$200,082</b>			
(Subt: Assemb 15.01.26 thru 15.01.28)				<b>\$239,067</b>	<i>supervision, health &amp; safety, and certification</i>		
<b>15.01 RMU-2 Landfill Closure</b>				<b>\$3,498,232</b>	<i>CWM estimate based on 6.9 acres</i>		

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan (Assembly 13.0) and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.



**15.02 RMU-2 Landfill Closure (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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Waste Cover Area Parameters						
1-Cell Scenario (Cell 20)	6.9	6.9 acres = 300,564 SF = 33,396 SY			= 62,113 BCY @ 1' deep	
2-Cell Scenario (Cells 18,20)	13.1	13.1 acres = 570,636 SF = 63,404 SY			= 11,132 BCY @ 1' deep	= 16,698 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5	19.5 acres = 849,420 SF = 94,380 SY			= 21,135 BCY @ 1' deep	= 31,702 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4	25.4 acres = 1,106,424 SF = 122,936 SY			= 31,460 BCY @ 1' deep	= 47,190 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9	31.9 acres = 1,389,564 SF = 154,396 SY			= 40,979 BCY @ 1' deep	= 61,468 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5	38.5 acres = 1,677,060 SF = 186,340 SY			= 51,465 BCY @ 1' deep	= 77,198 BCY @ 1.5' deep
					= 62,113 BCY @ 1' deep	= 93,170 CY @ 1.5' deep

Liner Feet of Separator Berm Converted to Perimeter Berm					Cut-Off-Wall Length	
1-Cell Scenario (Cell 20)	575				1-Cell Scenario (Cell 20)	445
2-Cell Scenario (Cells 18,20)	1490				2-Cell Scenario (Cells 18,20)	1300
3-Cell Scenario (Cells 18,20,19)	1030				3-Cell Scenario (Cells 18,20,19)	960
4-Cell Scenario (Cells 18,20,19,17)	575				4-Cell Scenario (Cells 18,20,19,17)	515
5-Cell Scenario (Cells 18,20,19,17,16)	600				5-Cell Scenario (Cells 18,20,19,17,16)	500
6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A				6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A

BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material

Separator Berm, Perimeter Berm, and Cut-Off-Wall Lengths from RMU-2 Permit Drawing No. 5  
 Perimeter Ditch 3,700 linear feet 1270+585+560+300+710+275=3,700  
 Drainage Tile System 5,580 linear feet 13.1 acres \* 426 LF/acre = 5,580 LF  
 Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)

<b>15.02.1 Convert Separator Berm to Perimeter Berm</b>						
Perimeter Berm	1490	lf	\$ 2,338.17	\$3,483,877	Includes 1300 feet of Cut-Off-Wall and 1490 feet of perimeter berm construction	Value taken from 15.01 Closure Cost, 15.A Berm tab.
Subt - Convert Separator Berm to Perimeter Berm			\$ 2,338.17	\$3,483,877		
(Subt: Assemblies 15.02.1)				\$3,483,877		

<b>15.02.2 Final Waste Cover Grading</b>					production rate = 250 cy/hr - based upon max of 12 inch depth	
Volume of Material to be Graded					21,135 BCY plus 25% comp fact = 26,419 LCY x 0% offsite mat'l = 0 LCY	no add'l mat'l; levelling/grading of existing waste pile only
Waste Grading	13.1	acre	\$5,000.00	\$65,500	13.1 acres	Contractor Rates/Site experience
Subt - Grading Final Waste Cover				\$65,500	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	

<b>15.02.3 Equipment Decontamination</b>					production rate = 4 hours per unit with 2 man crew: 6 pieces of equipment	
Laborer	48	hours	\$39.00	\$1,872	6 units @ 4 hrs/unit = 24 hours @ 2 pers/crew = 48 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Cleaning Solvent	6	gal	\$4.00	\$24	6 units @ 1 gal/unit = 6 gallons	site experience
Pressure Washer	24	hours	\$4.04	\$97	6 units @ 4 hrs/unit = 24 hours @ 1 units/crew = 24 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
PCB Solids/Debris Transport	4.8	mile	\$3.50	\$17	1 drum Solids/debris @ 80 drums/load = 0.0125 loads @ 385 miles/load = 4.8 miles	Rate: transporters quote/site experience
PCB Solids/Debris Disposal	1	drum	\$100.00	\$100	1 drum Solids/debris	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing
Subt - Equipment Decontamination				\$2,110		

<b>15.02.4 Decon Water Samp/Dispose</b>					production rate = 0.5 hours/sample for two techs	
Technician	1	hours	\$38.00	\$38	1.0 samp @ 0.5 hr/samp = 0.5 hours @ 2 pers/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
VOC Analysis (EPA 624)	1	samp	\$105.00	\$105	1.0 areas @ 1.0 samp/area = 1.0 samples	analytical price: average of three quotes
On-site Water Disposal	1200	gal	\$0.0313	\$38	6 units @ 200 gal/unit/wa = 1200 gallons	200 gallons per unit/site experience
Subt - Decon Water Samp/Disposal				\$181		

**15.02 RMU-2 Landfill Closure (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.02.5 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs; 2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.02.6 Perimeter Ditch Spreading</b>					Included in 15.02.7	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.02.7 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	2010 Average of two bids
Subt - Compact Fin'l Cover/Ditch	3700	LF	\$12.00	<b>\$44,400</b>	Liner feet	
<b>15.02.8 Final Cover/Ditch Inspection</b>					Included in CQA 15.02.28	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.02.2 thru 15.02.8)				<b>\$113,646</b>	<i>grading, compacting, &amp; inspecting final waste pile layer; decon &amp; testing of equipment</i>	<i>waste cover area</i>
<b>15.02.9 Grading Layer</b>					Based on 2009 Design & 13.1 acres to be closed: depth 0.5 ft	Grading layer 0.5 feet thick
General Fill	13209	CY	\$11.00	\$145,299	10,567 BCY plus 25% comp fact = 13,209 LCY x 100% offsite mat'l : 13,209 LCY	
General Fill Place/Compact	13209	CY	\$10.00	\$132,090	10,567 BCY plus 25% comp fact = 13,209 LCY x 100% offsite mat'l : 13,209 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	13.1	acre	\$10,000.00	\$131,000	13.1 acres	Site Experience
Subt - Grading Layer				<b>\$408,389</b>		
<b>15.02.10 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 13.1 acres to be closed	
GCL Material	713295	SF	\$0.46	\$328,116	570,636 SF plus 25% lap factor = 713,395 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	713985	SF	\$0.35	\$249,895	570,636 SF plus 25% lap factor = 713,395 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$578,010</b>		
(Subt: Assemblies 15.02.9 thru 15.02.10)				<b>\$986,399</b>	<i>spread and compact grading layer (0.5' offsite material) and install of impervious GCL</i>	<i>cap cover area</i>
<b>15.02.11 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	713295	SF	\$0.21	\$149,792	570,636 SF plus 25% lap factor = 713,395 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	713295	SF	\$0.46	\$328,116	570,636 SF plus 25% lap factor = 713,395 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$477,908</b>		
<b>15.02.12 Liner Anchor Trench</b>						
Anchor Trench	13.1	acres	\$1,000.00	\$13,100	13.1 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$13,100</b>	<i>includes labor &amp; equipment for trenching, backfilling, and compacting (3' x 1.5')</i>	
<b>15.02.13 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	713295	SF	\$0.38	\$271,052	570,636 SF plus 25% lap factor = 713,395 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	713295	SF	\$0.32	\$228,254		2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$499,307</b>		

**15.02 RMU-2 Landfill Closure (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.02.14 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.02.11; see assembly 15.02.28 for QA Monitoring	
Subt - Liner Testing			\$0	\$0	field testing crew required to work concurrently with liner placement crew in Assem 15.02.11	
(Subt: Assem 15.02.11 thru 15.02.14)				<b>\$990,314</b>	<i>installing geosynthetics above impervious gcl layer</i>	<i>liner area: cap cover plus 25% lap factor</i>
<b>15.02.15 Unclassified Fill</b>					depth = 1.5 feet (in one 18" lift) for final cover	
General Fill - offsite source	39628	LCY	\$11	\$435,908	31,702 BCY plus 25% comp fact = 39,628 LCY x 100% offsite mat'l : 39,628 LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$435,908</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	
<b>15.02.16 Compacting Unclassified Fill</b>					Compaction of one 1.5 feet lift	
Place/Spread/Compact Unclass. Fill	39628	LCY	\$10	\$396,280	31,702 BCY plus 25% comp fact = 39,628 LCY x 100% offsite mat'l : 39,628 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$396,280</b>		
<b>15.02.17 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				\$0	Included in Assem 15.02.28 QA/QC Monitoring	
<b>15.02.18 Unclassified Fill Test Fill</b>					Assume two sources of unclassified fill	
Test Fill Construction	1	each	\$12,000	\$12,000	1 test fill/source @ 1 source/13.1 acres = 1 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	1	each	\$8,000	\$8,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$20,000</b>		
(Subt: Assem 15.02.15 thru 15.02.18)				<b>\$852,188</b>	<i>spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material</i>	<i>cap cover area</i>
<b>15.02.19 Spreading Topsoil</b>					depth = 0.5 feet	
Topsoil	13209	LCY	\$15.00	\$198,135	10,567 BCY plus 25% comp fact = 13,209 LCY x 100% offsite mat'l : 13,209 LCY	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	13209	LCY	\$11.00	\$145,299	10,567 BCY plus 25% comp fact = 13,209 LCY x 100% offsite mat'l : 13,209 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$343,434</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	Includes hydroseeding/mulch/fertilizer
<b>15.02.20 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assem 15.02.19	
Erosion Control Matting	3712	SY	\$12.50	\$46,400	3,340 LF x 10 FT wide rolls = 33,400 SF / 9 SF/SY = 3,712 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$46,400</b>		Drainage Tile System
(Subt: Assem 15.02.19 thru 15.02.20)				<b>\$389,834</b>	<i>placing topsoil and hydro seeding with mulch and fertilizer</i>	<i>cap cover area</i>
<b>15.02.21 Downflume Installation</b>						
Rip Rap Downflume (grouted)	2	each	\$23,625.00	\$47,250	13.1 acres @ 2 downflume = 2 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$47,250</b>		
<b>15.02.22 Cap Drainage Syst Install'n</b>					production rate = 47.5 LF/hr, RSM/SWL p. 77 (02510-850-0200)	
Install Cap Drainage System	5580	LF	\$15.06	\$84,035	11.21 acres 5,580 LF	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$84,035</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assem 15.02.21 thru 15.02.22)				<b>\$131,285</b>	<i>downflume and drainage system installation</i>	<i>cap cover area</i>

**15.02 RMU-2 Landfill Closure (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>15.02.23 Groundwater Monitoring</b>					production rate = 0.5 hours per sample for two techs; 21 wells; 1 events/6 months	
<b>Monit'g Events &amp; Samples/Event</b>					0.0 quart'ly + 20 semi-ann + 1.0 b-ann'l x 1.05 each = 21.5 samp	includes 5% QA sampling
Technician	21.5	hours	\$38.00	\$817	21.5 samp @ 0.5 hrs/samp = 10.7 hours @ 2 units/crew = 21.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	21.5	samp	\$25.00	\$538	21.5 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	21.5	samp	\$105.00	\$2,258		Average of three quotes
Subt - GW Mon During Closure				<b>\$3,612</b>	<i>groundwater monitoring for six (6) months</i>	
(Subt: Assembly 15.02.23)				<b>\$3,612</b>		

<b>15.02.24 Leachate Management</b>					leachate collected from surface and sub-surface projected to be mildly contaminated	Sampling Frequency from Schedule I, Exhibit F, Condition G
Onsite Aqueous Treatment	5623738	gals	\$0.0178	\$100,103	13.1 acres x 429,293 gal/acre = 5,623,738	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	0	kwh	\$0.10	\$0	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	8760	kwh	\$0.10	\$876	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 2.0 pumps = 8,760 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 26,280 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	1	each	\$2,294.00	\$2,294	4 pumps x 25% factor = 1.0 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$120,195</b>	<i>leachate collection and management for twelve months</i>	

<b>15.02.25 Leachate Monitoring</b>					12 months of leachate monitoring	
Technician	24	hours	\$38.00	\$912	24 samp @ 0.5 hrs/samp = 12 hours @ 2 units/crew = 24 hours	
Sampling Supplies	24	samp	\$5.00	\$120	24 samples Included in unit rate	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	8.4	samp	\$105.00	\$882	4 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 8.4 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	4.2	samp	\$131.67	\$553	2 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	4.2	samp	\$155.00	\$651	2 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	8.4	samp	\$105.00	\$882	4 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 8.4 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	2.1	samp	\$633.33	\$1,330	1 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 2.1 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	2.1	samp	\$155.00	\$326	1 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 2.1 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	25.2	samp	\$15.00	\$378	12 samp/yr x 2 cells x 1.0 years 1.05 QA req't = 25.2 samples	analytical price: average of three quotes - permit specifications
Shipping	8.4	each	\$5.00	\$42		
Subt - Leachate Monitoring				<b>\$6,076</b>	<i>leachate collection and management for twelve months</i>	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.02.24 thru 15.02.25)				<b>\$126,270</b>		

<b>15.02.26 PPE Usage &amp; H&amp;S Planning</b>					Level C during waste grading, grading layer installation, and decon only.	
PPE Usage - Level D	655	days	\$0.00	\$0	50 man days/ acre x 13.1 acres = 655 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C	
PPE Usage - Level C	131	days	\$25.00	\$3,275	5 days/acre x 13.1 acres = 2 crew = 131 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	157.2	hours	\$75.00	\$11,790	6,288 hours @ 2.5% hr/hr = 157.2 hours	60 man days/acre * 8 hrs * 13.1 acres = 6288 hrs
Subt - PPE Usage/H&S Planning				<b>\$15,065</b>		

**15.02 RMU-2 Landfill Closure (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.02.27 Supervision</b>						
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs	
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs	
Construction Management	13.1	acre	\$4,500.00	\$58,950	\$4,500 per acre @ 13.1 acres	
Subtotal - Supervision				<b>\$58,950</b>		
<b>15.02.28 QA/QC Monitoring/Certification</b>						
<i>Final Cover</i>					570,636 SF plus 25% lap factor = 713,395 SF	
GCL Conformance Testing	8.0	test	\$235.00	\$1,880	570,636 SF plus 25% lap factor = 713,395 SF @ 1 test/100000 SF = 8.0 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	8.0	test	\$98.00	\$784	570,636 SF plus 25% lap factor = 713,395 SF @ 1 test/100000 SF = 8.0 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	8.0	test	\$300.00	\$2,400	570,636 SF plus 25% lap factor = 713,395 SF @ 1 test/100000 SF = 8.0 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	13.1	acre	\$25,700.00	\$336,670	13.1 acres	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$361,954</b>		
(Subt: Assemb 15.02.26 thru 15.02.28)				<b>\$435,969</b>	<i>supervision, health &amp; safety, and certification</i>	
<b>15.02 RMU-2 Landfill Closure</b>				<b>\$7,513,394</b>	<i>CWM estimate based on 13.1 acres</i>	

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.

<b>15.02 RMU-2 Landfill Closure (2-Cells)</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Closure</b>		\$7,513,394	
Site Activity Management Costs	7.00%	\$525,938	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$300,536	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$450,804	note: DEC uses 6%
Engineering During Construction	2.00%	\$150,268	note: DEC uses 2%
General Contractor Profit	6.00%	\$450,804	Note DEC adds 6%
<b>Indirect Costs/Basic Closure</b>	25.00%	\$1,878,349	
<b>Subtotal - RMU-2 Landfill Closure</b>		\$9,391,743	
<b>Plus Contingency</b>	10.00%	\$939,174	CWM and DEC 10%
<b>Total - RMU-2 Landfill Closure</b>		<b>\$10,330,917</b>	

Cost Per Acre \$788,619.63 CWM estimate based on 13.1 acres

**Cost References:**

- "RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)
- "RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)
- "RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

Waste Area of RMU-2 (6 cells) :	38.5	
Cell #	Acres	Cummulative Acres
20	6.9	6.9
18	6.2	13.1
19	6.4	19.5
17	5.9	25.4
16	6.5	31.9
15	6.6	38.5
<b>Total Area</b>	<b>38.5</b>	<b>acres</b>

**Assumptions:**

- 0.5 Grading Layer (Unclassified/General Fill)
- Geosynthetic Clay Liner
- 40 mil roughened HDPE geomembrane
- Geocomposite drainage layer
- Eighteen inches (1.5 feet) of unclassified/general fill
- Six inches (0.5 feet) topsoil and vegetative cover

Includes slope correction

Closure Scenarios - Assume Construction Sequence  
Cell 20, 18, 19, 17, 16, 15

**Closure Sequence**

- Cell 20
- Cell 20/18
- Cell 20/18/19
- Cell 20/18/19/17
- Cell 20/18/19/17/16
- Cell 20/18/19/17/16/15

**Convert Separation Berm to Perimeter Berm**

- 1.1 Install Cut-off-Wall at outside toe-of-slope of the separator berm
- 1.2 Install perimeter berm
- 1.3 Install 3-foot compacted clay liner
- 1.4 Remove separator berm geosynthetics and clay
- 1.5 Install perimeter berm geosynthetics

**15.03 RMU-2 Landfill Closure (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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Waste Cover Area Parameters						
			38.5 acres = 1,677,060 SF = 186,340 SY	= 62,113 BCY @ 1' deep	Includes slope correction	
1-Cell Scenario (Cell 20)	6.9	6.9 acres = 300,564 SF = 33,396 SY		= 11,132 BCY @ 1' deep	= 5,566 BCY @ 0.5' deep	= 16,698 BCY @ 1.5' deep
2-Cell Scenario (Cells 18,20)	13.1	13.1 acres = 570,636 SF = 63,404 SY		= 21,135 BCY @ 1' deep	= 10,567 BCY @ 0.5' deep	= 31,702 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5	19.5 acres = 849,420 SF = 94,380 SY		= 31,460 BCY @ 1' deep	= 15,730 BCY @ 0.5' deep	= 47,190 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4	25.4 acres = 1,106,424 SF = 122,936 SY		= 40,979 BCY @ 1' deep	= 20,489 BCY @ 0.5' deep	= 61,468 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9	31.9 acres = 1,389,564 SF = 154,396 SY		= 51,465 BCY @ 1' deep	= 25,733 BCY @ 0.5' deep	= 77,198 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5	38.5 acres = 1,677,060 SF = 186,340 SY		= 62,113 BCY @ 1' deep	= 31,056 BCY @ 0.5' deep	= 93,170 CY @ 1.5' deep

Liner Feet of Separator Berm Converted to Perimeter Berm				Cut-Off-Wall Length		
1-Cell Scenario (Cell 20)	575			1-Cell Scenario (Cell 20)	445	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material
2-Cell Scenario (Cells 18,20)	1490			2-Cell Scenario (Cells 18,20)	1300	
3-Cell Scenario (Cells 18,20,19)	1030			3-Cell Scenario (Cells 18,20,19)	960	
4-Cell Scenario (Cells 18,20,19,17)	575			4-Cell Scenario (Cells 18,20,19,17)	515	
5-Cell Scenario (Cells 18,20,19,17,16)	600			5-Cell Scenario (Cells 18,20,19,17,16)	500	
6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A			6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A	

Separator Berm, Perimeter Berm, and Cut-Off-Wall Lengths from RMU-2 Permit Drawing No. 5  
 Perimeter Ditch 4,700 linear feet 560+585+670+500+600+775+710+300 = 4,700  
 Drainage Tile System 8,307 linear feet 19.5 acres \* 426 LF/acre = 8,307 LF

Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)

<b>15.03.1 Convert Separator Berm to Perimeter Berm</b>						
Perimeter Berm	1030	lf	\$2,338.17	\$2,408,317	Includes 960 feet of Cut-Off-Wall and 1030 feet of perimeter berm construction	Value taken from 15.01 Closure Cost, 15.A Berm tab.
Subt - Convert Separator Berm to Perimeter Berm			\$2,338.17	\$2,408,317		
(Subt: Assemblies 15.02.1)				\$2,408,317		

<b>15.03.2 Final Waste Cover Grading</b>					production rate = 250 cy/hr - based upon max of 12 inch depth	
Volume of Material to be Graded					31,460 BCY plus 25% comp fact = 39,325 LCY x 0% offsite mat'l = 0 LCY	no add'l mat'l; levelling/grading of existing waste pile only
Waste Grading	19.5	acre	\$5,000.00	\$97,500	19.5 acres	Contractor Rates/Site experience
Subt - Grading Final Waste Cover				\$97,500	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	

<b>15.03.3 Equipment Decontamination</b>					production rate = 4 hours per unit with 2 man crew: 6 pieces of equipment	
Laborer	48	hours	\$39.00	\$1,872	6 units @ 4 hrs/unit = 24 hours @ 2 pers/crew = 48 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Cleaning Solvent	6	gal	\$4.00	\$24	6 units @ 1 gal/unit = 6 gallons	site experience
Pressure Washer	24	hours	\$4.04	\$97	6 units @ 4 hrs/unit = 24 hours @ 1 units/crew = 24 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
PCB Solids/Debris Transport	4.8	mile	\$3.50	\$17	1 drum Solids/debris @ 80 drums/load = 0.0125 loads @ 385 miles/load = 4.8 miles	Rate: transporters quote/site experience
PCB Solids/Debris Disposal	1	drum	\$100.00	\$100	1 drum Solids/debris	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing
Subt - Equipment Decontamination				\$2,110		

<b>15.03.4 Decon Water Samp/Dispose</b>					production rate = 0.5 hours/sample for two techs	
Technician	1	hours	\$38.00	\$38	1.0 samp @ 0.5 hr/samp = 0.5 hours @ 2 pers/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
VOC Analysis (EPA 624)	1	samp	\$105.00	\$105	1.0 areas @ 1.0 samp/area = 1.0 samples	analytical price: average of three quotes
On-site Water Disposal	1200	gal	\$0.0313	\$38	6 units @ 200 gal/unit/wa = 1200 gallons	200 gallons per unit/site experience
Subt - Decon Water Samp/Disposal				\$181		

**15.03 RMU-2 Landfill Closure (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.03.5 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs; 2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.03.6 Perimeter Ditch Spreading</b>					Included in 15.03.7	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.03.7 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	2010 Average of two bids
Subt - Compact Fin'l Cover/Ditch	4700	LF	\$12.00	<b>\$56,400</b>	Liner feet	
<b>15.03.8 Final Cover/Ditch Inspection</b>					Included in CQA 15.03.28	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.03.2 thru 15.03.8)				<b>\$157,646</b>	<i>grading, compacting, &amp; inspecting final waste pile layer; decon &amp; testing of equipment</i>	<i>waste cover area</i>
<b>15.03.9 Grading Layer</b>					Based on 2009 Design & 19.5 acres to be closed	Grading layer 0.5 feet thick
General Fill	19662	CY	\$11.00	\$216,282	15,730 BCY plus 25% comp fact = 19,662 LCY x 100% offsite mat'l : 19,662 LCY	
General Fill Place/Compact	19662	CY	\$10.00	\$196,620	15,730 BCY plus 25% comp fact = 19,662 LCY x 100% offsite mat'l : 19,662 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	19.5	acre	\$10,000.00	\$195,000	19.5 acres	Site Experience
Subt - Grading Layer				<b>\$607,902</b>		
<b>15.03.10 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 19.5 acres to be closed	
GCL Material	1062775	SF	\$0.46	\$488,877	849,420 SF plus 25% lap factor = 1,062,775 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	1062775	SF	\$0.35	\$371,971	849,420 SF plus 25% lap factor = 1,062,775 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$860,848</b>		
(Subt: Assemblies 15.03.9 thru 15.03.10)				<b>\$1,468,750</b>	<i>spread and compact grading layer (0.5' offsite material) and install of impervious GCL</i>	<i>cap cover area</i>
<b>15.03.11 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	1062775	SF	\$0.21	\$223,183	849,420 SF plus 25% lap factor = 1,062,775 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	1062775	SF	\$0.46	\$488,877	849,420 SF plus 25% lap factor = 1,062,775 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$712,059</b>		
<b>15.03.12 Liner Anchor Trench</b>						
Anchor Trench	19.5	acres	\$1,000.00	\$19,500	19.5 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$19,500</b>	<i>includes labor &amp; equipment for trenching, backfilling, and compacting (3' x 1.5')</i>	
<b>15.03.13 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	1062775	SF	\$0.38	\$403,855	849,420 SF plus 25% lap factor = 1,062,775 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	1062775	SF	\$0.32	\$340,088	849,420 SF plus 25% lap factor = 1,062,775 SF	2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$743,943</b>		

**15.03 RMU-2 Landfill Closure (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.03.14 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.03.11; see assembly 15.03.28 for QA Monitoring	
Subt - Liner Testing			\$0	\$0	field testing crew required to work concurrently with liner placement crew in Assem 15.03.11	
(Subt: Assemb 15.03.11 thru 15.03.14)				<b>\$1,475,502</b>	<i>installing geosynthetics above impervious gcl layer</i>	<i>liner area: cap cover plus 25% lap factor</i>
<b>15.03.15 Unclassified Fill</b>					depth = 1.5 feet (in one 18" lift) for final cover	
General Fill - offsite source	58988	LCY	\$11	\$648,868	47,190 BCY plus 25% comp fact = 58,988 LCY x 100% offsite mat'l : 58,988 LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$648,868</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	
<b>15.03.16 Compacting Unclassified Fill</b>					Compaction of one 1.5 feet lift	
Place/Spread/Compact Unclass. Fill	58988	LCY	\$10	\$589,880	47,190 BCY plus 25% comp fact = 58,988 LCY x 100% offsite mat'l : 58,988 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$589,880</b>		
<b>15.03.17 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				\$0	Included in Assemb 15.03.28 QA/QC Monitoring	
<b>15.03.18 Unclassified Fill Test Fill</b>					Assume two sources of unclassified fill	
Test Fill Construction	2	each	\$12,000	\$24,000	1 test fill/source @ 2 source/16.56 acres = 2 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	2	each	\$8,000	\$16,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$40,000</b>		
(Subt: Assemb 15.03.15 thru 15.03.18)				<b>\$1,278,748</b>	<i>spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material</i>	<i>cap cover area</i>
<b>15.03.19 Spreading Topsoil</b>					depth = 0.5 feet	
Topsoil	19662	LCY	\$15.00	\$294,930	15,730 BCY plus 25% comp fact = 19,662 LCY x 100% offsite mat'l : 19,662 LCY	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	19662	LCY	\$11.00	\$216,282	15,730 BCY plus 25% comp fact = 19,662 LCY x 100% offsite mat'l : 19,662 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$511,212</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	Includes hydroseeding/mulch/fertilizer
<b>15.03.20 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assemb 15.03.19	
Erosion Control Matting	5,525	SY	\$12.50	\$69,063	4,972 LF x 10 ft wide rolls = 49,720 SF / 9 SF/SY = 5,525 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$69,063</b>		
(Subt: Assemb 15.03.19 thru 15.03.20)				<b>\$580,275</b>	<i>placing topsoil and hydro seeding with mulch and fertilizer</i>	<i>cap cover area</i>
<b>15.03.21 Downflume Installation</b>						
Rip Rap Downflume (grouted)	2	each	\$23,625.00	\$47,250	19.5 acres @ 2 downflume = 2 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$47,250</b>		
<b>15.03.22 Cap Drainage Syst Install'n</b>					production rate = 47.5 LF/hr, RSM/SWL p. 77 (02510-850-0200)	
Install Cap Drainage System	8307	LF	\$15.06	\$125,103	19.5 acres 8,307 LF	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$125,103</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assemb 15.03.21 thru 15.03.22)				<b>\$172,353</b>	<i>downflume and drainage system installation</i>	<i>cap cover area</i>

**15.03 RMU-2 Landfill Closure (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>15.03.23 Groundwater Monitoring</b>					production rate = 0.5 hours per sample for two techs; 21 wells; 2 events/12 months	
<b>Monit'g Events &amp; Samples/Event</b>					0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp	includes 5% QA sampling
Technician	42.5	hours	\$38.00	\$1,615	42.5 samp @ 0.5 hrs/samp = 11.1 hours @ 2 units/crew = 42.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	42.5 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	42.5	samp	\$105.00	\$4,463		Average of three quotes
Subt - GW Mon During Closure				<b>\$7,140</b>	<i>groundwater monitoring for twelve (12) months</i>	
(Subt: Assembly 15.03.23)				<b>\$7,140</b>		

<b>15.03.24 Leachate Management</b>					leachate collected from surface and sub-surface projected to be mildly contaminated	
Onsite Aqueous Treatment	8371314	gals	\$0.0178	\$149,009	19.5 acres x 429,293 gal/acre = 8,371,314	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	12264	kwh	\$0.10	\$1,226	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	13140	kwh	\$0.10	\$1,314	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 3.0 pumps = 13,140 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 26,280 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	1.25	each	\$2,294.00	\$2,868	5 pumps x 25% factor = 1.25 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$171,339</b>	<i>leachate collection and management for twelve months</i>	

<b>15.03.25 Leachate Monitoring</b>					12 months of leachate monitoring	Sampling Frequency from Schedule I, Exhibit F, Condition G
Technician	36	hours	\$38.00	\$1,368	36 samp @ 0.5 hrs/samp = 18 hours @ 2 units/crew = 36 hours	
Sampling Supplies	36	samp	\$5.00	\$180	36 samples Included in unit rate	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	12.6	samp	\$105.00	\$1,323	4 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 12.6 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	6.3	samp	\$131.67	\$830	2 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 6.3 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	6.3	samp	\$155.00	\$977	2 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 6.3 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	12.6	samp	\$105.00	\$1,323	4 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 12.6 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	3.2	samp	\$633.33	\$2,027	1 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 3.2 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	3.2	samp	\$155.00	\$496	1 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 3.2 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	37.8	samp	\$15.00	\$567	12 samp/yr x 3 cells x 1.0 years 1.05 QA req't = 37.8 samples	analytical price: average of three quotes - permit specifications
Shipping	12.6	each	\$5.00	\$63		
Subt - Leachate Monitoring				<b>\$9,153</b>	<i>leachate collection and management for twelve months</i>	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.03.24 thru 15.03.25)				<b>\$180,492</b>		

<b>15.03.26 PPE Usage &amp; H&amp;S Planning</b>					Level C during waste grading, grading layer installation, and decon only.	
PPE Usage - Level D	975	days	\$0.00	\$0	50 man days/ acre x 19.5 acres = 975 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C	
PPE Usage - Level C	195	days	\$25.00	\$4,875	5 days/acre x 19.5 acres x 2 crew = 195 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	234	hours	\$75.00	\$17,550	9,360 hours @ 2.5% hr/hr = 234 hours	60 man days/acre * 8 hrs * 19.5 acres = 9360 hrs
Subt - PPE Usage/H&S Planning				<b>\$22,425</b>		

**15.03 RMU-2 Landfill Closure (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.03.27 Supervision</b>						
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs	
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs	
Construction Management	19.5	acre	\$4,500.00	\$87,750	\$4,500 per acre @ 19.5 acres	
Subtotal - Supervision				<b>\$87,750</b>		
<b>15.03.28 QA/QC Monitoring/Certification</b>						
<i>Final Cover</i>					849,420 SF plus 25% lap factor = 1,062,775 SF	
GCL Conformance Testing	11.0	test	\$235.00	\$2,585	849,420 SF plus 25% lap factor = 1,062,775 SF @ 1 test/100000 SF = 11 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	11.0	test	\$98.00	\$1,078	849,420 SF plus 25% lap factor = 1,062,775 SF @ 1 test/100000 SF = 11 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	11.0	test	\$300.00	\$3,300	849,420 SF plus 25% lap factor = 1,062,775 SF @ 1 test/100000 SF = 11 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	19.5	acre	\$25,700.00	\$501,150	19.5 acres	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$528,333</b>		
(Subt: Assemb 15.03.26 thru 15.03.28)				<b>\$638,508</b>	<i>supervision, health &amp; safety, and certification</i>	
<b>15.03 RMU-2 Landfill Closure</b>						
				<b>\$8,367,731</b>	<i>CWM estimate based on 19.5 acres</i>	

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.



**15.04 RMU-2 Landfill Closure (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
Waste Cover Area Parameters						
1-Cell Scenario (Cell 20)	6.9	6.9 acres = 300,564 SF = 33,396 SY			= 62,113 BCY @ 1' deep	
2-Cell Scenario (Cells 18,20)	13.1	13.1 acres = 570,636 SF = 63,404 SY			= 11,132 BCY @ 1' deep	= 5,566 BCY @ 0.5' deep = 16,698 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5	19.5 acres = 849,420 SF = 94,380 SY			= 21,135 BCY @ 1' deep	= 10,567 BCY @ 0.5' deep = 31,702 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4	25.4 acres = 1,106,424 SF = 122,936 SY			= 31,460 BCY @ 1' deep	= 15,730 BCY @ 0.5' deep = 47,190 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9	31.9 acres = 1,389,564 SF = 154,396 SY			= 40,979 BCY @ 1' deep	= 20,489 BCY @ 0.5' deep = 61,468 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5	38.5 acres = 1,677,060 SF = 186,340 SY			= 51,465 BCY @ 1' deep	= 25,733 BCY @ 0.5' deep = 77,198 BCY @ 1.5' deep
					= 62,113 BCY @ 1' deep	= 31,056 BCY @ 0.5' deep = 93,170 CY @ 1.5' deep
Liner Feet of Separator Berm Converted to Perimeter Berm					Cut-Off-Wall Length	
1-Cell Scenario (Cell 20)	575				1-Cell Scenario (Cell 20)	445
2-Cell Scenario (Cells 18,20)	1490				2-Cell Scenario (Cells 18,20)	1300
3-Cell Scenario (Cells 18,20,19)	1030				3-Cell Scenario (Cells 18,20,19)	960
4-Cell Scenario (Cells 18,20,19,17)	575				4-Cell Scenario (Cells 18,20,19,17)	515
5-Cell Scenario (Cells 18,20,19,17,16)	600				5-Cell Scenario (Cells 18,20,19,17,16)	500
6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A				6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A
Separator Berm, Perimeter Berm, and Cut-Off-Wall Lengths from RMU-2 Permit Drawing No. 5						
Perimeter Ditch		4,825 linear feet			1270+1200+600+500+670+585 = 4,825	
Drainage Tile System		10,820 linear feet			25.4 acres * 426 LF/acre = 10,820 LF	
Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)						

<b>15.04.1 Convert Separator Berm to Perimeter Berm</b>						
Perimeter Berm	575	lf	\$2,338.17	\$1,344,449	Includes 515 feet of Cut-Off-Wall and 575 feet of perimeter berm construction	Value taken from 15.01 Closure Cost, 15.A Berm tab.
Subt - Convert Separator Berm to Perimeter Berm			\$2,338.17	\$1,344,449		
(Subt: Assemblies 15.02.1)				\$1,344,449		

<b>15.04.2 Final Waste Cover Grading</b>						
Volume of Material to be Graded					production rate = 250 cy/hr - based upon max of 12 inch depth	
Waste Grading	25.4	acre	\$5,000.00	\$127,000	40,979 BCY plus 25% comp fact = 51,224 LCY x 0% offsite mat'l = 0 LCY	no add'l mat'l; levelling/grading of existing waste pile only
Subt - Grading Final Waste Cover				\$127,000	25.4 acres	Contractor Rates/Site experience
					BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	

<b>15.04.3 Equipment Decontamination</b>						
Laborer	48	hours	\$39.00	\$1,872	production rate = 4 hours per unit with 2 man crew: 6 pieces of equipment	
Cleaning Solvent	6	gal	\$4.00	\$24	6 units @ 4 hrs/unit = 24 hours @ 2 pers/crew = 48 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Pressure Washer	24	hours	\$4.04	\$97	6 units @ 1 gal/unit = 6 gallons	site experience
PCB Solids/Debris Transport	4.8	mile	\$3.50	\$17	6 units @ 4 hrs/unit = 24 hours @ 1 units/crew = 24 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
PCB Solids/Debris Disposal	1	drum	\$100.00	\$100	1 drum Solids/debris @ 80 drums/load = 0.0125 loads @ 385 miles/load = 4.8 miles	Rate: transporters quote/site experience
Subt - Equipment Decontamination				\$2,110	1 drum Solids/debris	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing

<b>15.04.4 Decon Water Samp/Dispose</b>						
Technician	1	hours	\$38.00	\$38	production rate = 0.5 hours/sample for two techs	
VOC Analysis (EPA 624)	1	samp	\$105.00	\$105	1.0 samp @ 0.5 hr/samp = 0.5 hours @ 2 pers/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
On-site Water Disposal	1200	gal	\$0.0313	\$38	1.0 areas @ 1.0 samp/area = 1.0 samples	analytical price: average of three quotes
Subt - Decon Water Samp/Disposal				\$181	6 units @ 200 gal/unit/wa = 1200 gallons	200 gallons per unit/site experience

**15.04 RMU-2 Landfill Closure (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.04.5 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs; 2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.04.6 Perimeter Ditch Spreading</b>					Included in 15.04.7	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.04.7 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	2010 Average of two bids
Subt - Compact Fin'l Cover/Ditch	4825	LF	\$12.00	<b>\$57,900</b>	Liner feet	
<b>15.04.8 Final Cover/Ditch Inspection</b>					Included in CQA 15.04.28	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.04.2 thru 15.04.8)				<b>\$188,646</b>	<i>grading, compacting, &amp; inspecting final waste pile layer; decon &amp; testing of equipment</i>	<i>waste cover area</i>
<b>15.04.9 Grading Layer</b>					Based on 2009 Design & 25.4 acres to be closed	Grading layer 0.5 feet thick
General Fill	25611	CY	\$11.00	\$281,721	20,489 BCY plus 25% comp fact = 25,611 LCY x 100% offsite mat'l : 25,611 LCY	
General Fill Place/Compact	25611	CY	\$10.00	\$256,110	20,489 BCY plus 25% comp fact = 25,611 LCY x 100% offsite mat'l : 25,611 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	25.4	acre	\$10,000.00	\$254,000	25.4 acres	Site Experience
Subt - Grading Layer				<b>\$791,831</b>		
<b>15.04.10 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 25.4 acres to be closed	
GCL Material	1383030	SF	\$0.46	\$636,194	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	1383030	SF	\$0.35	\$484,061	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$1,120,254</b>		
(Subt: Assemblies 15.04.9 thru 15.04.10)				<b>\$1,912,085</b>	<i>spread and compact grading layer (0.5' offsite material) and install of impervious GCL</i>	<i>cap cover area</i>
<b>15.04.11 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	1383030	SF	\$0.21	\$290,436	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	1383030	SF	\$0.46	\$636,194	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$926,630</b>		
<b>15.04.12 Liner Anchor Trench</b>						
Anchor Trench	25.4	acres	\$1,000.00	\$25,400	25.4 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$25,400</b>	<i>includes labor &amp; equipment for trenching, backfilling, and compacting (3' x 1.5')</i>	
<b>15.04.13 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	1383030	SF	\$0.38	\$525,551	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	1383030	SF	\$0.32	\$442,570	1,106,424 SF plus 25% lap factor = 1,383,030 SF	2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$968,121</b>		
<b>15.04.14 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.04.11; see assembly 15.04.28 for QA Monitoring	
Subt - Liner Testing			\$0	<b>\$0</b>	field testing crew required to work concurrently with liner placement crew in Assem 15.04.11	
(Subt: Assemb 15.04.11 thru 15.04.14)				<b>\$1,920,151</b>	<i>installing geosynthetics above impervious gcl layer</i>	<i>liner area: cap cover plus 25% lap factor</i>

**15.04 RMU-2 Landfill Closure (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.04.15 Unclassified Fill</b>					depth = 1.5 feet (in one 18" lift) for final cover	
General Fill - offsite source	76835	LCY	\$11	\$845,185	61,468 BCY plus 25% comp fact = 76,835 LCY x 100% offsite mat'l : 76,835 LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$845,185</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	
<b>15.04.16 Compacting Unclassified Fill</b>					Compaction of one 1.5 feet lift	
Place/Spread/Compact Unclass. Fill	76835	LCY	\$10	\$768,350	61,468 BCY plus 25% comp fact = 76,835 LCY x 100% offsite mat'l : 76,835 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$768,350</b>		
<b>15.04.17 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				<b>\$0</b>	Included in Assemb 15.04.28 QA/QC Monitoring	
<b>15.04.18 Unclassified Fill Test Fill</b>					Assume two sources of unclassified fill	
Test Fill Construction	2	each	\$12,000	\$24,000	1 test fill/source @ 2 source/21.98 acres = 2 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	2	each	\$8,000	\$16,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$40,000</b>		
(Subt: Assemb 15.04.15 thru 15.04.18)				<b>\$1,653,535</b>	<i>spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material</i>	<i>cap cover area</i>
<b>15.04.19 Spreading Topsoil</b>					depth = 0.5 feet	
Topsoil	25611	LCY	\$15.00	\$384,165	20,489 BCY plus 25% comp fact = 25,611 LCY x 100% offsite mat'l : 25,611 LCY	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	25611	LCY	\$11.00	\$281,721	20,489 BCY plus 25% comp fact = 25,611 LCY x 100% offsite mat'l : 25,611 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$665,886</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	Includes hydroseeding/mulch/fertilizer
<b>15.04.20 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assemb 15.04.19	
Erosion Control Matting	7197	SY	\$12.50	\$89,963	6477 LF x 10 ft wide rolls = 64,770 SF / 9 SF/SY = 7,197 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$89,963</b>		
(Subt: Assemb 15.04.19 thru 15.04.20)				<b>\$755,849</b>	<i>placing topsoil and hydro seeding with mulch and fertilizer</i>	<i>cap cover area</i>
<b>15.04.21 Downflume Installation</b>						
Rip Rap Downflume (grouted)	2	each	\$23,625.00	\$47,250	25.4 acres @ 2 downflume = 2 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$47,250</b>		
<b>15.04.22 Cap Drainage Syst Install'n</b>					production rate = 47.5 LF/hr, RSM/SWL p. 77 (02510-850-0200)	
Install Cap Drainage System	10820	LF	\$15.06	\$162,949	25.4 acres 10,820 LF	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$162,949</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assemb 15.04.21 thru 15.04.22)				<b>\$210,199</b>	downflume and drainage system installation	<i>cap cover area</i>

**15.04 RMU-2 Landfill Closure (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>15.04.23 Groundwater Monitoring</b>					production rate = 0.5 hours per sample for two techs; 21 wells; 2 events/12 months	
<b>Monit'g Events &amp; Samples/Event</b>					0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp	includes 5% QA sampling
Technician	42.5	hours	\$38.00	\$1,615	42.5 samp @ 0.5 hrs/samp = 11.1 hours @ 2 units/crew = 42.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	42.5 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	42.5	samp	\$105.00	\$4,463		Average of three quotes
Subt - GW Mon During Closure				<b>\$7,140</b>	<i>groundwater monitoring for twelve (12) months</i>	
(Subt: Assembly 15.04.23)				<b>\$7,140</b>		

<b>15.04.24 Leachate Management</b>					leachate collected from surface and sub-surface projected to be mildly contaminated	
Onsite Aqueous Treatment	10904042	gals	\$0.0178	\$194,092	25.4 acres x 429,293 gal/acre = 10,904,042	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	12264	kwh	\$0.10	\$1,226	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	13140	kwh	\$0.10	\$1,314	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 4.0 pumps = 17,520 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 26,280 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	1.5	each	\$2,294.00	\$3,441	6 pumps x 25% factor = 1.5 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$216,995</b>	<i>leachate collection and management for twelve months</i>	

<b>15.04.25 Leachate Monitoring</b>					12 months of leachate monitoring	Sampling Frequency from Schedule I, Exhibit F, Condition G
Technician	48	hours	\$38.00	\$1,824	48 samp @ 0.5 hrs/samp = 24 hours @ 2 units/crew = 48 hours	
Sampling Supplies	48	samp	\$5.00	\$240	48 samples Included in unit rate	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	16.8	samp	\$105.00	\$1,764	4 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 16.8 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	8.4	samp	\$131.67	\$1,106	2 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 8.4 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	8.4	samp	\$155.00	\$1,302	2 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 8.4 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	16.8	samp	\$105.00	\$1,764	4 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 16.8 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	4.2	samp	\$633.33	\$2,660	1 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	4.2	samp	\$155.00	\$651	1 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 4.2 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	50.4	samp	\$15.00	\$756	12 samp/yr x 4 cells x 1.0 years 1.05 QA req't = 50.4 samples	analytical price: average of three quotes - permit specifications
Shipping	16.8	each	\$5.00	\$84		
Subt - Leachate Monitoring				<b>\$12,151</b>	<i>leachate collection and management for twelve months</i>	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.04.24 thru 15.04.25)				<b>\$229,146</b>		

<b>15.04.26 PPE Usage &amp; H&amp;S Planning</b>					Level C during waste grading, grading layer installation, and decon only.	
PPE Usage - Level D	1270	days	\$0.00	\$0	50 man days/ acre x 25.4 acres = 1270 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C	
PPE Usage - Level C	254	days	\$25.00	\$6,350	5.0 days/acre x 25.4 acres x 2 crew = 254 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	304.8	hours	\$75.00	\$22,860	12,192 hours @ 2.5% hr/hr = 304.8 hours	60 man days/acre * 8 hrs * 25.4 acres = 12192 hrs
Subt - PPE Usage/H&S Planning				<b>\$29,210</b>		

**15.04 RMU-2 Landfill Closure (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.04.27 Supervision</b>						
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs	
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs	
Construction Management	25.4	acre	\$4,500.00	\$114,300	\$4,500 per acre @ 25.4 acres	
Subtotal - Supervision				<b>\$114,300</b>		
<b>15.04.28 QA/QC Monitoring/Certification</b>						
<i>Final Cover</i>					1,106,424 SF plus 25% lap factor = 1,383,030 SF	
GCL Conformance Testing	14.0	test	\$235.00	\$3,290	1,106,424 SF plus 25% lap factor = 1,383,030 SF @ 1 test/100000 SF = 14 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	14.0	test	\$98.00	\$1,372	1,106,424 SF plus 25% lap factor = 1,383,030 SF @ 1 test/100000 SF = 14 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	14.0	test	\$300.00	\$4,200	1,106,424 SF plus 25% lap factor = 1,383,030 SF @ 1 test/100000 SF = 14 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	25.4	acre	\$25,700.00	\$652,780	25.4 acres	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$681,862</b>		
(Subt: Assemb 15.04.26 thru 15.04.28)				<b>\$825,372</b>	<i>supervision, health &amp; safety, and certification</i>	
<b>15.04 RMU-2 Landfill Closure</b>				<b>\$9,046,573</b>	<i>CWM estimate based on 25.4 acres</i>	

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.





**15.05 RMU-2 Landfill Closure (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.05.5 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs; 2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.05.6 Perimeter Ditch Spreading</b>					Included in 15.05.7	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.05.7 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	2010 Average of two bids
Subt - Compact Fin'l Cover/Ditch	6035	LF	\$12.00	<b>\$72,420</b>	Liner feet	
<b>15.05.8 Final Cover/Ditch Inspection</b>					Included in CQA 15.05.28	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.05.2 thru 15.05.8)				<b>\$234,666</b>	grading, compacting, & inspecting final waste pile layer; decon & testing of equipment	waste cover area
<b>15.05.9 Grading Layer</b>					Based on 2009 Design & 31.9 acres to be closed	Grading layer 0.5 feet thick
General Fill	32166	CY	\$11.00	\$353,826	25,733 BCY plus 25% comp fact = 32,166 LCY x 100% offsite mat'l 32,166 LCY	
General Fill Place/Compact	32166	CY	\$10.00	\$321,660	25,733 BCY plus 25% comp fact = 32,166 LCY x 100% offsite mat'l 32,166 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	31.9	acre	\$10,000.00	\$319,000	31.9 acres	Site Experience
Subt - Grading Layer				<b>\$994,486</b>		
<b>15.05.10 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 31.9 acres to be closed	
GCL Material	1736955	SF	\$0.46	\$798,999	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	1736955	SF	\$0.35	\$607,934	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$1,406,934</b>		
(Subt: Assemblies 15.05.9 thru 15.05.10)				<b>\$2,401,420</b>	spread and compact grading layer (0.5' offsite material) and install of impervious GCL	cap cover area
<b>15.05.11 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	1736955	SF	\$0.21	\$364,761	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	1736955	SF	\$0.46	\$798,999	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$1,163,760</b>		
<b>15.05.12 Liner Anchor Trench</b>						
Anchor Trench	31.9	acres	\$1,000.00	\$31,900	31.9 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$31,900</b>	includes labor & equipment for trenching, backfilling, and compacting (3' x 1.5')	
<b>15.05.13 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	1736955	SF	\$0.38	\$660,043	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	1736955	SF	\$0.32	\$555,826	1,389,564 SF plus 25% lap factor = 1,736,955 SF	2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$1,215,869</b>		
<b>15.05.14 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.05.11; see assembly 15.05.28 for QA Monitoring	
Subt - Liner Testing			\$0	<b>\$0</b>	field testing crew required to work concurrently with liner placement crew in Assem 15.05.11	
(Subt: Assemb 15.05.11 thru 15.05.14)				<b>\$2,411,528</b>	installing geosynthetics above impervious gcl layer	liner area: cap cover plus 25% lap factor

**15.05 RMU-2 Landfill Closure (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.05.15 Unclassified Fill</b>						
General Fill - offsite source	96498	LCY	\$11	\$1,061,478	depth = 1.5 feet (in one 18" lift) for final cover 77,198 BCY plus 25% comp fact = 87,877 LCY x 100% offsite mat'l 96,498LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$1,061,478</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	
<b>15.05.16 Compacting Unclassified Fill</b>						
Place/Spread/Compact Unclass. Fill	96498	LCY	\$10	\$964,980	Compaction of one 1.5 feet lift 77,198 BCY plus 25% comp fact = 87,877 LCY x 100% offsite mat'l 96,498LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$964,980</b>		
<b>15.05.17 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				<b>\$0</b>	Included in Assemb 15.05.28 QA/QC Monitoring	
<b>15.05.18 Unclassified Fill Test Fill</b>						
Test Fill Construction	2	each	\$12,000	\$24,000	Assume two sources of unclassified fill 1 test fill/source @ 2 source/31.9 acres = 2 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	2	each	\$8,000	\$16,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$40,000</b>		
(Subt: Assemb 15.05.15 thru 15.05.18)				<b>\$2,066,458</b>	<i>spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material</i>	<i>cap cover area</i>
<b>15.05.19 Spreading Topsoil</b>						
Topsoil	32166	LCY	\$15.00	\$482,490	depth = 0.5 feet 25,733 BCY plus 25% comp fact = 32,166 LCY x 100% offsite mat'l 32,166 LCY	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	32166	LCY	\$11.00	\$353,826	25,733 BCY plus 25% comp fact = 32,166 LCY x 100% offsite mat'l 32,166 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$836,316</b>	<i>BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material</i>	Includes hydroseeding/mulch/fertilizer
<b>15.05.20 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assemb 15.05.19	
Erosion Control Matting	8587	SY	\$12.50	\$107,338	7,728 LF x 10 ft wide rolls = 77,280 SF / 9 SF/SY = 8,587 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$107,338</b>		
(Subt: Assemb 15.05.19 thru 15.05.20)				<b>\$943,654</b>	<i>placing topsoil and hydro seeding with mulch and fertilizer</i>	<i>cap cover area</i>
<b>15.05.21 Downflume Installation</b>						
Rip Rap Downflume (grouted)	3	each	\$23,625.00	\$70,875	31.9 acres @ 3 downflume = 3 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$70,875</b>		
<b>15.05.22 Cap Drainage Syst Install'n</b>						
Install Cap Drainage System	13590	LF	\$15.05	\$204,530	production rate = 47.5 LF/hr, RSM/SWL p. 77 (02510-850-0200) 31.9 acres	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$204,530</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assemb 15.05.21 thru 15.05.22)				<b>\$275,405</b>	downflume and drainage system installation	<i>cap cover area</i>

**15.05 RMU-2 Landfill Closure (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.05.23 Groundwater Monitoring</b>					production rate = 0.5 hours per sample for two techs; 21 wells; 2 events/12 months	
<b>Monit'g Events &amp; Samples/Event</b>					0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp	includes 5% QA sampling
Technician	42.5	hours	\$38.00	\$1,615	42.5 samp @ 0.5 hrs/samp = 11.1 hours @ 2 units/crew = 42.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	42.5 samples	bottles, shipping supplies
VOC Analysis (EPA 624)	42.5	samp	\$105.00	\$4,463		Average of three quotes
Subt - GW Mon During Closure				<b>\$7,140</b>	<i>groundwater monitoring for twelve (12) months</i>	
(Subt: Assembly 15.05.23)				<b>\$7,140</b>		
<b>15.05.24 Leachate Management</b>					leachate collected from surface and sub-surface projected to be mildly contaminated	
Onsite Aqueous Treatment	13694446	gals	\$0.0178	\$243,761	31.9 acres x 429,293 gal/acre = 13,694,446 gallons	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	0	kwh	\$0.10	\$0	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	26280	kwh	\$0.10	\$2,628	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 6.0 pumps = 26,280 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 26,280 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	1.75	each	\$2,294.00	\$4,015	7 pumps x 25% factor = 1.75 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$267,326</b>	<i>leachate collection and management for twelve months</i>	
<b>15.05.25 Leachate Monitoring</b>					12 months of leachate monitoring	
Technician	60	hours	\$38.00	\$2,280	60 samp @ 0.5 hrs/samp = 30 hours @ 2 units/crew = 60 hours	Sampling Frequency from Schedule I, Exhibit F, Condition G
Sampling Supplies	60	samp	\$5.00	\$300	60 samples Included in unit rate	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	21	samp	\$105.00	\$2,205	4 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 21 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	10.5	samp	\$131.67	\$1,383	2 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 10.5 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	10.5	samp	\$155.00	\$1,628	2 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 10.5 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	21	samp	\$105.00	\$2,205	4 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 21 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	5.3	samp	\$633.33	\$3,357	1 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 5.3 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	5.3	samp	\$155.00	\$822	1 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 5.3 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	63	samp	\$15.00	\$945	12 samp/yr x 5 cells x 1.0 years 1.05 QA req't = 63 samples	analytical price: average of three quotes - permit specifications
Shipping	21	each	\$5.00	\$105		
Subt - Leachate Monitoring				<b>\$15,228</b>	<i>leachate collection and management for twelve months</i>	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.05.24 thru 15.05.25)				<b>\$282,554</b>		
<b>15.05.26 PPE Usage &amp; H&amp;S Planning</b>					Level C during waste grading, grading layer installation, and decon only.	
PPE Usage - Level D	1595	days	\$0.00	\$0	50 man days/ acre x 31.9 acres = 1,595 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C	
PPE Usage - Level C	319	days	\$25.00	\$7,975	5 days/acre x 31.9 acres x 2 crew = 319 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	382.8	hours	\$75.00	\$28,710	15,312 hours @ 2.5% hr/hr = 382.8 hours	60 man days/acre * 8 hrs * 31.9 acres = 15312 hrs
Subt - PPE Usage/H&S Planning				<b>\$36,685</b>		

**15.05 RMU-2 Landfill Closure (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.05.27 Supervision</b>						
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs	
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs	
Construction Management	31.9	acre	\$4,500.00	\$143,550	\$4,500 per acre @ 31.9 acres	
Subtotal - Supervision				<b>\$143,550</b>		
<b>15.05.28 QA/QC Monitoring/Certification</b>						
<i>Final Cover</i>						
GCL Conformance Testing	18.0	test	\$235.00	\$4,230	1,389,564 SF plus 25% lap factor = 1,736,955 SF @ 1 test/100000 SF = 18 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	18.0	test	\$98.00	\$1,764	1,389,564 SF plus 25% lap factor = 1,736,955 SF @ 1 test/100000 SF = 18 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	18.0	test	\$300.00	\$5,400	1,389,564 SF plus 25% lap factor = 1,736,955 SF @ 1 test/100000 SF = 18 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	31.9	acre	\$25,700.00	\$819,830	31.9 acres	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$851,444</b>		
(Subt: Assemb 15.05.26 thru 15.05.28)				<b>\$1,031,679</b>	<i>supervision, health &amp; safety, and certification</i>	
<b>15.05 RMU-2 Landfill Closure</b>						
				<b>\$11,057,406</b>	<i>CWM estimate based on 31.9 acres</i>	

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.

<b>15.05 RMU-2 Landfill Closure (5-Cells)</b>			
<b>Cost Category</b>	<b>Proposed Percent of Direct Cost</b>	<b>Proposed 2011 Cost</b>	<b>Cost Range</b>
<b>Direct Costs/Basic Closure</b>		\$11,057,406	
Site Activity Management Costs	7.00%	\$774,018	note: DEC uses 7%
Gen'l Contractor G&A/Home Office	4.00%	\$442,296	note: DEC uses 4%
Pre-Construction Design Costs	6.00%	\$663,444	note: DEC uses 6%
Engineering During Construction	2.00%	\$221,148	note: DEC uses 2%
General Contractor Profit	6.00%	\$663,444	Note DEC adds 6%
<b>Indirect Costs/Basic Closure</b>	25.00%	\$2,764,352	
<b>Subtotal - RMU-2 Landfill Closure</b>		\$13,821,758	
<b>Plus Contingency</b>	10.00%	\$1,382,176	CWM and DEC 10%
<b>Total - RMU-2 Landfill Closure</b>		<b>\$15,203,934</b>	

Cost Per Acre \$476,612.34 CWM estimate based on 31.9 acres

**Cost References:**

- "RSM/HC" refers to the RSMeans "Heavy Construction Cost Data", 2009 Edition (rates adjusted for inflation)
- "RSM/UP" refers to the RSMeans "Environmental Remediation Cost Data - Unit Price", 2004 Edition (rates adjusted for inflation)
- "RSM/BC" refers to the RSMeans "Building Construction Cost Data", 2003 Edition (rates adjusted for inflation)

Waste Area of RMU-2 (6 cells) : 38.5

Cell #	Acres	Cummulative Acres
20	6.9	6.9
18	6.2	13.1
19	6.4	19.5
17	5.9	25.4
16	6.5	31.9
15	6.6	38.5
<b>Total Area</b>	<b>38.5</b>	<b>acres</b>

**Assumptions:**

- 0.5 Grading Layer (Unclassified/General Fill)
- Geosynthetic Clay Liner
- 40 mil roughened HDPE geomembrane
- Geocomposite drainage layer
- Eighteen inches (1.5 feet) of unclassified/general fill
- Six inches (0.5 feet) topsoil and vegetative cover

Includes slope correction

Closure Scenarios - Assume Construction Sequence  
Cell 20, 18, 19, 17, 16, 15

**Closure Sequence**

- Cell 20
- Cell 20/18
- Cell 20/18/19
- Cell 20/18/19/17
- Cell 20/18/19/17/16
- Cell 20/18/19/17/16/15

**Convert Separation Berm to Perimeter Berm**

- 1.1 Install Cut-off-Wall at outside toe-of-slope of the separator berm
- 1.2 Install perimeter berm
- 1.3 Install 3-foot compacted clay liner
- 1.4 Remove separator berm geosynthetics and clay
- 1.5 Install perimeter berm geosynthetics

**15.06 RMU-2 Landfill Closure (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
Waste Cover Area Parameters	38.5 acres = 1,677,060 SF = 186,340 SY				= 62,113 BCY @ 1' deep	
1-Cell Scenario (Cell 20)	6.9 6.9 acres = 300,564 SF = 33,396 SY				= 11,132 BCY @ 1' deep	Includes slope correction = 5,566 BCY @ 0.5' deep = 16,698 BCY @ 1.5' deep
2-Cell Scenario (Cells 18,20)	13.1 13.1 acres = 570,636 SF = 63,404 SY				= 21,135 BCY @ 1' deep	= 10,567 BCY @ 0.5' deep = 31,702 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5 19.5 acres = 849,420 SF = 94,380 SY				= 31,460 BCY @ 1' deep	= 15,730 BCY @ 0.5' deep = 47,190 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4 25.4 acres = 1,106,424 SF = 122,936 SY				= 40,979 BCY @ 1' deep	= 20,489 BCY @ 0.5' deep = 61,468 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9 31.9 acres = 1,389,564 SF = 154,396 SY				= 51,465 BCY @ 1' deep	= 25,733 BCY @ 0.5' deep = 77,198 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5 38.5 acres = 1,677,060 SF = 186,340 SY				= 62,113 BCY @ 1' deep	= 31,056 BCY @ 0.5' deep = 93,170 CY @ 1.5' deep
Perimeter Ditch	6,500 linear feet					BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material
Drainage Tile System	16,400 linear feet			16,400/38.5 = 426 LF/acre		
Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)						
<b>15.06.1 Final Waste Cover Grading</b>					production rate = 250 cy/hr - based upon max of 12 inch depth	
Volume of Material to be Graded					62,113 BCY plus 25% comp fact = 77,641 LCY x 0% offsite mat'l = 0 LCY	no add'l mat'l; levelling/grading of existing waste pile only
Waste Grading	38.5	acre	\$5,000.00	\$192,500	38.5 acres	Contractor Rates/Site experience
Subt - Grading Final Waste Cover				<b>\$192,500</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.06.2 Equipment Decontamination</b>					production rate = 4 hours per unit with 2 man crew: 6 pieces of equipment	
Laborer	48	hours	\$39.00	\$1,872	6 units @ 4 hrs/unit = 24 hours @ 2 pers/crew = 48 hours	HASP req's two: loaded labor rate 2011 3rd party quote
Cleaning Solvent	6	gal	\$4.00	\$24	6 units @ 1 gal/unit = 6 gallons	site experience
Pressure Washer	24	hours	\$4.04	\$97	6 units @ 4 hrs/unit = 24 hours @ 1 units/crew = 24 hours	RSM/HC p. 471 (line item 01 54 33 40 5450)
PCB Solids/Debris Transport	4.8	mile	\$3.50	\$17	1 drum Solids/debris @ 80 drums/load = 0.0125 loads @ 385 miles/load = 4.8 miles	Rate: transporters quote/site experience
PCB Solids/Debris Disposal	1	drum	\$100.00	\$100	1 drum Solids/debris	HWC/ETC 2004 & CWM 2011 cost comparison industry pricing
Subt - Equipment Decontamination				<b>\$2,110</b>		
<b>15.06.3 Decon Water Samp/Dispose</b>					production rate = 0.5 hours/sample for two techs	
Technician	1	hours	\$38.00	\$38	1.0 samp @ 0.5 hr/samp = 0.5 hours @ 2 pers/crew = 1.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
VOC Analysis (EPA 624)	1	samp	\$105.00	\$105	1.0 areas @ 1.0 samp/area = 1.0 samples	analytical price: average of three quotes
On-site Water Disposal	1200	gal	\$0.0313	\$38	6 units @ 200 gal/unit/wa = 1200 gallons	200 gallons per unit/site experience
Subt - Decon Water Samp/Disposal				<b>\$181</b>		
<b>15.06.4 PCB Equipment Wipe</b>					production rate = 0.5 hours/sample for two techs; 2 wipe samples per unit/site experience	
Technician	12	hours	\$38.00	\$456	12.0 samp @ 0.5 hr/samp = 6.0 hours @ 2 pers/crew = 12.0 hours	HASP req's two: loaded labor rate 2011 3rd party quote
PCB Analysis (SW 8081/8082)	12	samp	\$83.33	\$1,000	6 units @ 2 samp/unit = 12.0 samples	analytical price: average of three quotes
Subt - PCB Wipe				<b>\$1,456</b>		
<b>15.06.5 Perimeter Ditch Spreading</b>					Included in 15.06.6	
Subt - Spreading Ditch Fill				<b>\$0.00</b>		
<b>15.06.6 Perimeter Road/Ditch Compaction</b>					Includes ditch excavation & road placement compaction	2010 Average of two bids
Subt - Compact Fin'l Cover/Ditch	6500	LF	\$12.00	<b>\$78,000</b>	Liner feet	
<b>15.06.7 Final Cover/Ditch Inspection</b>					Included in CQA 15.06.27	
Subt - Inspecting Final Cover/Ditch				<b>\$0</b>		
(Subt: Assemblies 15.06.1 thru 15.06.7)				<b>\$274,246</b>	grading, compacting, & inspecting final waste pile layer; decon & testing of equipment	waste cover area

**15.06 RMU-2 Landfill Closure (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.06.8 Grading Layer</b>					Based on 2009 Design & 38.5 acres to be closed	Grading layer 0.5 feet thick
General Fill	38821	CY	\$11.00	\$427,031	31,057 BCY plus 25% comp fact = 38,821 LCY x 100% offsite mat'l = 38,821 LCY	
General Fill Place/Compact	38821	CY	\$10.00	\$388,210	31,057 BCY plus 25% comp fact = 38,821 LCY x 100% offsite mat'l = 38,821 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Grading Layer Surface Prep	38.5	acre	\$10,000.00	\$385,000	38.5 acres	Site Experience
Subt - Grading Layer				<b>\$1,200,241</b>		
<b>15.06.9 Cover Geosynthetic Clay Liner</b>					Based on 2009 Design & 38.5 acres to be closed	
GCL Material	2084612	SF	\$0.46	\$958,922	1,677,690 SF plus 25% lap factor = 2,084,612 SF	2011 Actual Cost per SQFT including shipping & tax
GCL Installation	2084612	SF	\$0.35	\$729,614	1,677,690 SF plus 25% lap factor = 2,084,612 SF	2010 Quoted price from CETCO
Subt - GCL				<b>\$1,688,536</b>		
(Subt: Assemblies 15.06.8 thru 15.06.9)				<b>\$2,888,777</b>	spread and compact grading layer (0.5' offsite material) and install of impervious GCL	cap cover area
<b>15.06.10 40-Mil Liner</b>					production rate = 250 SF/Hr,	
40-Mil Polymeric Liner	2084612	SF	\$0.21	\$437,769	1,677,690 SF plus 25% lap factor = 2,084,612 SF	2010 Actual Cost per SQFT including tax & shipping
40-Mil Polymeric Liner Installation	2084612	SF	\$0.46	\$958,922	1,677,690 SF plus 25% lap factor = 2,084,612 SF	2010 Quoted price from CETCO
Subt - 40-Mil Liner				<b>\$1,396,690</b>		
<b>15.06.11 Liner Anchor Trench</b>						
Anchor Trench	38.5	acres	\$1,000.00	\$38,500	38.5 acres remaining	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Anchor Trench				<b>\$38,500</b>	includes labor & equipment for trenching, backfilling, and compacting (3' x 1.5')	
<b>15.06.12 Geocomposite Drainage Layer</b>					production rate = 5,000 SF/Hr, RSM/UP p. 9-83 (33-08-0513)	
Geocomposite Drainage Layer	2084612	SF	\$0.38	\$792,153	1,677,690 SF plus 25% lap factor = 2,084,612 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Geocomposite Drainage Layer Install	2084612	SF	\$0.32	\$667,076		2010 Quoted price from CETCO
Subt - Geocomposite Layer				<b>\$1,459,228</b>		
<b>15.06.13 Geosynthetic Liner Testing</b>					QC testing included in Assem 15.06.10; see assembly 15.06.27 for QA Monitoring	
Subt - Liner Testing			\$0	\$0	field testing crew required to work concurrently with liner placement crew in Assem 15.06.10	
(Subt: Assemb 15.06.10 thru 15.06.13)				<b>\$2,894,418</b>	installing geosynthetics above impervious gcl layer	liner area: cap cover plus 25% lap factor
<b>15.06.14 Unclassified Fill</b>					depth = 1.5 feet (in one 18" lift) for final cover	
General Fill - offsite source	116462	LCY	\$11	\$1,281,082	93,170 BCY plus 25% comp fact = 116,462 LCY x 100% offsite mat'l = 116,462 LCY	Actual Quoted Cost 2011 (Tri-C, Inc.)
Subt - Spreading Unclassified Fill				<b>\$1,281,082</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.06.15 Compacting Unclassified Fill</b>					Compaction of one 1.5 feet lift	
Place/Spread/Compact Unclass. Fill	116462	LCY	\$10	\$1,164,620	93,170 BCY plus 25% comp fact = 116,462 LCY x 100% offsite mat'l = 116,462 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Compacting Unclass. Fill				<b>\$1,164,620</b>		
<b>15.06.16 Unclassified Fill Testing</b>						
Subt - Unclassified Fill Testing				\$0	Included in Assemb 15.06.27 QA/QC Monitoring	

**15.06 RMU-2 Landfill Closure (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.06.17 Unclassified Fill Test Fill</b>						
					Assume two sources of unclassified fill	
Test Fill Construction	2	each	\$12,000	\$24,000	1 test fill/source @ 2 source/38.5 acres = 2 test fills	Actual Cost 2011 (Tri-C, Inc.)
Test Fill QA Testing/Reporting	2	each	\$8,000	\$16,000		Actual Cost 2011 (Ensol, Inc.)
Subt - Unclassified Fill Test Fill				<b>\$40,000</b>		
(Subt: Assemb 15.06.14 thru 15.06.17)				<b>\$2,485,702</b>	spreading and compacting unclassified fill layer; 1.5-feet in depth using 100% offsite material	cap cover area
<b>15.06.18 Spreading Topsoil</b>						
					depth = 0.5 feet	
Topsoil	38821	LCY	\$15.00	\$582,315	31,057 BCY plus 25% comp fact = 38,821 LCY x 100% offsite mat'l = 38,821 LCY	Actual Cost 2011 (Tri-C, Inc.)
Spreading Topsoil	38821	LCY	\$11.00	\$427,031	31,057 BCY plus 25% comp fact = 38,821 LCY x 100% offsite mat'l = 38,821 LCY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Spreading Topsoil				<b>\$1,009,346</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	Includes hydroseeding/mulch/fertilizer
<b>15.06.19 Cap Vegetation</b>						
Hydro Seeding w/Mulch & Fertilizer	0	MSF	0	\$0	Included in Assemb 15.06.18	
Erosion Control Matting	10000	SY	\$12.50	\$125,000	9000 LF x 10 ft wide rolls = 90,000 SF / 9 SF/SY = 10,000 SY	Average of two bids (3rd bid disqualified due to non-conformity)
Subt -Cap Vegetation				<b>\$125,000</b>		Drainage Tile System
(Subt: Assemb 15.06.18 thru 15.06.19)				<b>\$1,134,346</b>	placing topsoil and hydro seeding with mulch and fertilizer	cap cover area
<b>15.06.20 Downflume Installation</b>						
Rip Rap Downflume (grouted)	3	each	\$23,625.00	\$70,875	38.5 acres @ 3 downflume = 3 downflume	Average of two bids (3rd bid disqualified due to non-conformity)
Subt - Install Downflume				<b>\$70,875</b>		
<b>15.06.21 Cap Drainage Syst Install'n</b>						
					production rate = 47.5 LF/hr, RSM/SWL p. 77 (02510-850-0200)	
Install Cap Drainage System	16400	LF	\$15.06	\$246,984	38.5 acres	Actual Cost 2011 (Tri-C, Inc.)
Subt - Install Cap Drainage System				<b>\$246,984</b>		Average of two bids (3rd bid disqualified due to non-conformity)
(Subt: Assemb 15.06.20 thru 15.06.21)				<b>\$317,859</b>	downflume and drainage system installation	cap cover area
<b>15.06.22 Groundwater Monitoring</b>						
<b>Monit'g Events &amp; Samples/Event</b>					production rate = 0.5 hours per sample for two techs; 29 wells; 2 events/12 months	
Technician	59.4	hours	\$38.00	\$2,257	0.0 quart'ly + 56.0 semi-ann + 1.0 b-ann'l x 1.05 each = 59.4 samp	includes 5% QA sampling
Sampling Supplies	59.4	samp	\$25.00	\$1,485	59.4 samp @ 0.5 hrs/samp = 29.7 hours @ 2 units/crew = 59.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
VOC Analysis (EPA 624)	59.4	samp	\$105.00	\$6,237	59.4 samples	bottles, shipping supplies
Subt - GW Mon During Closure				<b>\$9,979</b>	groundwater monitoring for twelve (12) months	Average of three quotes
(Subt: Assembly 15.06.22)				<b>\$9,979</b>		
<b>15.06.23 Leachate Management</b>						
					leachate collected from surface and sub-surface projected to be mildly contaminated	
Onsite Aqueous Treatment	16528780	gals	\$0.0178	\$294,212	38.5 acres x 429,293 gal/acre = 16527780 gals	17,000,000 gal = maximum volume of leachate for RMU-1 (39.6 acres) in past 10 years over 12 months closure. 17,000,000/39.6 = 429,293 gal/acre
Electricity for 40-gpm Pumps	0	kwh	\$0.10	\$0	2 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 0.0 pumps = 0.0 kwhs	40 gpm pump = 2 hp; 1.0 hph = .75 kwh
Electricity for 100-gpm Pumps	26280	kwh	\$0.10	\$2,628	5 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 6.0 pumps = 26,280 kwhs	100 gpm pump = 5 hp; 1.0 hph = .75 kwh
Electricity for 600-gpm Pump	26280	kwh	\$0.10	\$2,628	30 kw/pump x 8760 hrs/1.0 yr x 10% time on @ 1.0 pump = 157,680 kwhs	600 gpm pump = 30 hp; 1.0 hph = .75 kwh
200 GPM Transfer Pump	1	each	\$6,194.00	\$6,194	1.0 pump =	2004 DEC Rate * Implicit Deflator
Fuel for 200-gpm Transfer Pump	1800	gals	\$4.50	\$8,100	2 gal/hr x 900 hrs/year x 1.0 pump = 1800 gals	fuel for transfer pump
Pump/Motor Replace/Maint/Repair	2	each	\$2,294.00	\$4,588	8 pumps x 25% factor = 2.0 events	2004 DEC Rate * Implicit Deflator
Subt - Leachate Management				<b>\$318,350</b>	leachate collection and management for twelve months	

**15.06 RMU-2 Landfill Closure (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.06.24 Leachate Monitoring</b>						
					12 months of leachate monitoring	Sampling Frequency from Schedule I, Exhibit F, Condition G
Technician	72	hours	\$38.00	\$2,736	72.0 samp @ 0.5 hrs/samp = 36.0 hours @ 2 units/crew = 72.0 hours	
Sampling Supplies	72	samp	\$5.00	\$360	72.0 samples	bottles, shipping supplies
Primary Leachate: PP VOCs (epa 624)	25.2	samp	\$105.00	\$2,646	4 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 25.2 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PCBs (sw 8081)	25.2	samp	\$131.67	\$3,318	4 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 25.2 samples	analytical price: average of three quotes - permit specifications
Primary Leachate: PP Metals (sw 6010)	12.6	samp	\$155.00	\$1,953	2 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 12.6 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: VOCs (epa 624)	25.2	samp	\$105.00	\$2,646	4 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 25.2 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Organics	6.3	samp	\$633.33	\$3,990	1 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 6.3 samples	analytical price: average of three quotes - permit specifications
Secondary Leach: PP Metals (sw 6010)	6.3	samp	\$155.00	\$977	1 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 6.3 samples	analytical price: average of three quotes - permit specifications
pH & conductivity	75.6	samp	\$15.00	\$1,134	12 samp/yr x 6 cells x 1.0 years 1.05 QA req't = 75.6 samples	analytical price: average of three quotes - permit specifications
Shipping	75.6	each	\$5.00	\$378		
Subt - Leachate Monitoring				\$20,138	leachate collection and management for twelve months	CWM estimate for leachate monitoring for 6 months
(Subt: Assemb 15.06.23 thru 15.06.24)				\$338,488		
<b>15.06.25 PPE Usage &amp; H&amp;S Planning</b>						
					Level C during waste grading, grading layer installation, and decon only.	
PPE Usage - Level D	1925	days	\$0.00	\$0	50 man days/ acre x 38.5 acres = 1925 days	50 man days/acre to complete closure
PPE Usage - Mod Level C	0	days	\$9.00	\$0	0 days for Modified Level C	
PPE Usage - Level C	385	days	\$25.00	\$9,625	5.0 days/acre x 38.5 acres x 2 crew = 385 days	5 days for waste grading per acre, grading layer installation and equip decon
Health & Safety Officer	462	hours	\$75.00	\$34,650	18,480 hours @ 2.5% hr/hr = 462 hours	60 man days/acre * 8 hrs * 38.5 acres = 18480 hrs
Subt - PPE Usage/H&S Planning				\$44,275		
<b>15.06.26 Supervision</b>						
Foreman	0	hours	\$65.00	\$0	Foreman included in per acre unit costs	
Site Project Manager	0	hours	\$75.00	\$0	Included in Construction Management costs	
Construction Management	38.5	acre	\$4,500.00	\$173,250	\$4,500 per acre @ 38.5 acres	
Subtotal - Supervision				\$173,250		
<b>15.06.27 QA/QC Monitoring/Certification</b>						
<i>Final Cover</i>						
GCL Conformance Testing	21.0	test	\$235.00	\$4,935	1677060 SF plus 25% lap factor = 2,084,612 SF @ 1 test/100000 SF = 21.0 tests	Actual Costs 2011 (TRI Environmental)
40-Mil Liner Conformance Testing	21.0	test	\$98.00	\$2,058	1677060 SF plus 25% lap factor = 2,084,612 SF @ 1 test/100000 SF = 21.0 tests	Actual Costs 2011 (TRI Environmental)
Geocomposite Liner Conformance Testing	21.0	test	\$300.00	\$6,300	1677060 SF plus 25% lap factor = 2,084,612 SF @ 1 test/100000 SF = 21.0 tests	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover GCL/40-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover 40-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Cover Geocomp/Soil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
QA/QC Monitoring/Certification	38.5	acre	\$25,700.00	\$989,450	38.5 acres	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				\$1,022,963		
(Subt: Assemb 15.06.25 thru 15.06.27)				\$1,240,488	supervision, health & safety, and certification	
<b>15.06 RMU-2 Landfill Closure</b>				<b>\$11,584,303</b>	CWM estimate based on 38.5 acres	

The Total Labor and Maintenance Costs per year to run the AWT Facility was calculated under the Site Wide Post Closure Plan (Assembly 13.0) and will remain constant regardless of whether or not RMU-2 is generating leachate; the labor, maintenance and number of days per year to run the facility will be the same. Therefore, no costs are associated with labor and maintenance.



**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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Waste Cover Area Parameters	38.5 acres = 1,677,060 SF = 186,340 SY				= 62,113 BCY @ 1' deep	Includes slope correction
1-Cell Scenario (Cell 20)	6.9	6.9 acres = 300,564 SF = 33,396 SY			= 11,132 BCY @ 1' deep	= 5,566 BCY @ 0.5' deep = 16,698 BCY @ 1.5' deep
2-Cell Scenario (Cells 18,20)	13.1	13.1 acres = 570,636 SF = 63,404 SY			= 21,135 BCY @ 1' deep	= 10,567 BCY @ 0.5' deep = 31,702 BCY @ 1.5' deep
3-Cell Scenario (Cells 18,20,19)	19.5	19.5 acres = 849,420 SF = 94,380 SY			= 31,460 BCY @ 1' deep	= 15,730 BCY @ 0.5' deep = 47,190 BCY @ 1.5' deep
4-Cell Scenario (Cells 18,20,19,17)	25.4	25.4 acres = 1,106,424 SF = 122,936 SY			= 40,979 BCY @ 1' deep	= 20,489 BCY @ 0.5' deep = 61,468 BCY @ 1.5' deep
5-Cell Scenario (Cells 18,20,19,17,16)	31.9	31.9 acres = 1,389,564 SF = 154,396 SY			= 51,465 BCY @ 1' deep	= 25,733 BCY @ 0.5' deep = 77,198 BCY @ 1.5' deep
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5	38.5 acres = 1,677,060 SF = 186,340 SY			= 62,113 BCY @ 1' deep	= 62,113 BCY @ 1' deep = 93,170 CY @ 1.5' deep

BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material

Liner Feet of Separator Berm Converted to Perimeter Berm	Cut-Off-Wall Length
1-Cell Scenario (Cell 20)	575
2-Cell Scenario (Cells 18,20)	1490
3-Cell Scenario (Cells 18,20,19)	1030
4-Cell Scenario (Cells 18,20,19,17)	575
5-Cell Scenario (Cells 18,20,19,17,16)	600
6-Cell Scenario (Cells 18,20,19,17,16,15)	N/A

Separator Berm, Perimeter Berm, and Cut-Off-Wall Lengths from RMU-2 Permit Drawing No. 5  
 Perimeter Ditch 2,290 linear feet 585+585+560+560 = 2,290  
 Drainage Tile System 2,939 linear feet 6.9 acres \* 426 LF/acre = 2,939 LF  
 Material Pre-Qualification and Construction Testing Frequencies from RMU-2 Quality Assurance Manual and Technical Specifications (2013)

<b>15.A.1 Cut-off-Wall Excavation</b>					Excavation assume 80 CY yards per hour	
Cut-off-Wall Length	445	feet			Assume Cut-Off-Wall 3 ft wide by 10 ft deep	
Cut-off-Wall Volume	494.4	CY			Cell 20 = 445 ft x 3 ft x 10 ft = 13,350 CF = 494.4 CY	
Laborer	6.2	hours	\$39.00	\$242	494.4 CY @ 80 CY/hr = 6.2 hours @ 1 units/crew = 6.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	6.2	hours	\$45.00	\$279	494.4 CY @ 80 CY/hr = 6.2 hours @ 1 units/crew = 6.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	6.2	hours	\$84.09	\$521	494.4 CY @ 80 CY/hr = 6.2 hours @ 1 units/crew = 6.2 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	6.2	hours	\$45.00	\$279	494.4 CY @ 80 CY/hr = 6.2 hours @ 1 units/crew = 6.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (20-cy load)	6.2	hours	\$24.78	\$154	494.4 CY @ 80 CY/hr = 6.2 hours @ 1 units/crew = 6.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - Cut Off Wall Excavation				<b>\$1,475</b>		
<b>15.A.2 Slurry Wall Installation</b>					Assume 10 ft deep and 3 ft wide	
Slurry Wall Length	445	LF			445 LF * 10 ft * 3ft = 13,350 CF	Backfilled with 3000psi concrete, no reinforcing steel. Includes O&P.
Slurry Wall Installation	13350	CF	\$23.50	\$313,725		Taken from 2009 Means Section 31 56 23.2
Subt - Slurry Wall Installation				<b>\$313,725</b>		
(Subt: Assemb 15.A.1 thru 15.A.2)				<b>\$315,200</b>		

**PERIMETER BERM:**

<b>15.A.3 Pre-Qual Gnl Fill Mat'l Testing</b>					1 per source 10 ft tall	
Perimeter Berm Length	575	FT			Cell 20 Perimeter Berm 575 feet in length at 25' wide at top and 2:1 outside slope and 3:1 inside slope	20.7 CY/ft
Calculation of LCYs in Berm Area	14878	LCY			11,902 BCY x 1.25 swell factor = 14,878 LCY	
Technician	1	hour	\$38.00	\$38	1 samp @ 0.5 hrs/samp = 0.5 hours @ 2.0 units/crew = 1 hours	technician rate: rate 2011 3rd party quote
Moisture Content	1	test	\$12.00	\$12	14,878 LCY @ 1 test per source = 1.0 test	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/o hydrometer	1	test	\$70.00	\$70	14,878 LCY @ 1 test per source = 1.0 test	Actual Costs 2011 (TRI Environmental)
Atteberg Limits	1	test	\$65.00	\$65	14,878 LCY @ 1 test per source = 1.0 test	Actual Costs 2011 (TRI Environmental)
Proctor Compaction	1	test	\$120.00	\$120	14,878 LCY @ 1 test per source = 1.0 test	Actual Costs 2011 (TRI Environmental)
Direct Shear	1	test	\$500.00	\$500	14,878 LCY @ 1 test per source = 1.0 test	Actual Costs 2011 (TRI Environmental)
Subt - Pre-Qual Berm Mat'l Testing				<b>\$805</b>		

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.4 Berm General Fill Spreading</b>						
					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 10 feet (in 12-inch lifts)	
Laborer	59.5	hour	\$39.00	\$2,321	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 0.5 units/crew = 59.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	238	hour	\$45.00	\$10,710	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 2 units/crew = 238 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Loader, Track	119	hour	\$30.03	\$3,574	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 1 units/crew = 119.0 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dozer (200 hp)	119	hour	\$56.38	\$6,709	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 1 units/crew = 119.0 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Dump Truck (20-ton load)	238	hour	\$24.78	\$5,898	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 2 units/crew = 238 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Driver	238	hour	\$45.00	\$10,710	14,878 LCY @ 125 LCY/hr = 119.0 hours @ 2 units/crew = 238 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
General Fill	14878	LCY	\$11.00	\$163,658	11,902 BCY plus 25% comp fact = 14,878 LCY x 100% offsite mat'l = 14,878 LCY	3rd party quote for RMU-1 final cover construction Assb. 14.0
Subt - Spreading Berm Gnl Fill				<b>\$203,579</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.5 Berm Gnl Fill Compaction</b>						
					production rate = 165 cy/hr, RSM/SWL p. 52 (02315-300-5640); depth = 30 feet (in 12-inch lifts)	
Laborer	45.1	hour	\$39.00	\$1,759	14,878 LCY @ 165 LCY/hr = 90.2 hours @ 0.5 units/crew = 45.1 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	112.8	hour	\$45.00	\$5,076	14,878 LCY @ 165 LCY/hr = 90.2 hours @ 1.25 units/crew = 112.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Landfill Compactor (220 hp)	902	hour	\$75.60	\$68,191	14,878 LCY @ 165 LCY/hr = 90.2 hours @ 1 units/crew = 90.2 hours	RSM/HC p. 468 (line item 01 54 33 20 3300)
Vibratory Steel Drum, Diesel	9.02	hour	\$25.70	\$232	14,878 LCY @ 165 LCY/hr = 90.2 hours @ 10.0% top lift only = 9.02 hours	RSM/HC p. 468 (line item 01 54 33 20 3320)
Subt - Compacting Berm Gnl Fill				<b>\$75,258</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.6 General Fill Testing</b>						
					one samples per 600 CY; 10 twelve-inch lifts; 10 feet of depth; 0.25 hrs/samp for 1 techs	
Technician	6.2	hour	\$38.00	\$236	24.8 samp @ 0.25 hrs/samp = 6.2 hours @ units/crew = 6.2 hours	technician rate: rate 2011 3rd party quote
Insitu Nuclear Density Test	24.8	test	\$39.00	\$967	14,878 BCY @ 1 sample per 600 CY = 24.8 tests	
Subt - General Fill Testing				<b>\$1,203</b>		
(Subt: Assemb 15.A.3 thru 15.A.6)				<b>\$280,845</b>		

<b>15.A.7 Pre-Qual Clay Mat'l Testing</b>						
					one sample per 1,000 LCY of base liner area	
Calculation of LCYs in Cap Area					5,578 BCY @ 3' depth x 1.35 swell factor = 7,530.3 LCY	9.7 CY/LF @ 575 LF
Technician	8.0	hour	\$38.00	\$304	8.0 samp @ 0.5 hrs/samp = 4.0 hours @ 2.0 units/crew = 8 hours	technician rate: rate 2011 3rd party quote
Moisture Content	8.0	test	\$12.00	\$96	7,530 LCY @ 1 test per 1000 LCY = 8.0 tests	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/o hydrometer	8.0	test	\$70.00	\$560	7,530 LCY @ 1 test per 1000 LCY = 8.0 tests	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/ hydrometer	2.0	test	\$100.00	\$200	7,530 LCY @ 1 test per 5000 LCY = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Atteberg Limits	8.0	test	\$65.00	\$520	7,530 LCY @ 1 test per 1000 LCY = 8.0 tests	Actual Costs 2011 (TRI Environmental)
Proctor Compaction	2.0	test	\$120.00	\$240	7,530 LCY @ 1 test per 5000 LCY = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Laboratory Hydraulic Conductivity	1.0	test	\$198.00	\$198	7,530 LCY @ 1 test per Source = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Direct Shear	2.0	test	\$500.00	\$1,000	7,530 LCY @ 1 test per 5000 LCY = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Subt - Pre-Qual Clay Mat'l Testing				<b>\$3,118</b>		

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.8 Clay Test Pad Testing</b>					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 2 feet (in 6-inch lifts)	
<i>Calculation of Test Pad Area</i>					60 ft. long x 20 ft. wide x 2 ft. deep = 2400 BCF = 89 BCY	
Laborer	1.0	hours	\$39.00	\$39	120.0 LCY @ 125 LCY/hr = 1.0 hours @ 1 units/crew = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	2.9	hours	\$45.00	\$131	120.0 LCY @ 125 LCY/hr = 1.0 hours @ 3 units/crew = 2.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Loader, Track	1.0	hours	\$30.03	\$30	120.0 LCY @ 125 LCY/hr = 1.0 hours @ 1 units/crew = 1.0 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dozer (200 hp)	1.0	hours	\$56.38	\$56	120.0 LCY @ 125 LCY/hr = 1.0 hours @ 1 units/crew = 1.0 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Landfill Compactor (220 hp)	1.0	hours	\$75.60	\$76	120.0 LCY @ 125 LCY/hr = 0.0 hours @ 1 units/crew = 0.0 hours	RSM/HC p. 468 (line item 01 54 33 20 3300)
Clay Fill	120.0	LCY	\$18.00	\$2,160	88.9 BCY plus 35% comp fact = 120.0 LCY x 100% offsite mat'l = 120.0 LCY	2009 RSMMeans \$9.85 Borrow and load + \$8.15 haul.
Technician	76.0	hour	\$38.00	\$2,888	76.0 samp @ 0.5 hrs/samp = 38.0 hours @ 2 units/crew = 76.0 hours	technician rate: rate 2011 3rd party quote
Boutwell Insitu Permeability Test	2.0	test	\$550.00	\$1,100	2 req'd by permit	Equipment charges
Insitu Nuclear Density Test	32.0	test	\$39.00	\$1,248	32 req'd by permit	
Moisture Content	6.0	test	\$12.00	\$72	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/o hydrometer	6.0	test	\$70.00	\$420	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Atteberg Limits	6.0	test	\$65.00	\$390	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Proctor Compaction	6.0	test	\$120.00	\$720	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Laboratory Hydraulic Conductivity	6.0	test	\$198.00	\$1,188	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Soil Classification	6.0	test	\$10.00	\$60	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Organic Content	6.0	test	\$55.00	\$330	6 req'd by permit	Actual Costs 2011 (TRI Environmental)
Subt - Clay Test Pad Testing				<b>\$10,908</b>		
<b>15.A.9 Clay Layer Spreading</b>					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 3 feet (in 6-inch lifts)	
Laborer	30.1	hours	\$39.00	\$1,174	7,530 LCY @ 125 LCY/hr = 60.2 hours @ 0.5 units/crew = 30.1 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	120.4	hours	\$45.00	\$5,418	7,530 LCY @ 125 LCY/hr = 60.2 hours @ 2 units/crew = 120.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Loader, Track	60.2	hours	\$30.03	\$1,808	7,530 LCY @ 125 LCY/hr = 60.2 hours @ 1 units/crew = 60.2 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dozer (200 hp)	60.2	hours	\$56.38	\$3,394	7,530 LCY @ 125 LCY/hr = 60.2 hours @ 1 units/crew = 60.2 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Clay Fill	7530.0	LCY	\$18.00	\$135,540	5,578 BCY plus 35% comp fact = 7,530 LCY x 100% offsite mat'l = 7,530 LCY	
Subt - Spreading Clay Layer				<b>\$147,334</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.10 Clay Layer Compaction</b>					production rate = 165 cy/hr, RSM/SWL p. 52 (02315-300-5640); depth = 3 feet (in 6-inch lifts)	
Laborer	22.8	hours	\$39.00	\$889	7,530 LCY @ 165 LCY/hr = 45.6 hours @ 0.5 units/crew = 22.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	57.0	hours	\$45.00	\$2,565	7,530 LCY @ 165 LCY/hr = 45.6 hours @ 1.25 units/crew = 57 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Landfill Compactor (220 hp)	22.8	hours	\$75.60	\$1,724	7,530 LCY @ 165 LCY/hr = 45.6 hours @ 1 units/crew = 22.8 hours	RSM/HC p. 468 (line item 01 54 33 20 3300)
Vibratory Steel Drum, Diesel	7.6	hours	\$25.70	\$195	7,530 LCY @ 165 LCY/hr = 45.6 hours @ 16.7% top lift only = 7.6 hours	RSM/HC p. 468 (line item 01 54 33 20 3320)
Subt - Compacting Clay Layer				<b>\$5,373</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.11 Clay Layer Testing</b>					nine samples per 6-inch lift per acre; 6 six-inch lifts; three feet of depth; 0.25 hrs/samp for 2 techs	
Technician	32.4	hours	\$38.00	\$1,231	64.8 samp @ 0.25 hrs/samp = 16.2 hours @ 2 units/crew = 32.4 hours	technician rate: rate 2011 3rd party quote
Insitu Nuclear Density Test	64.8	test	\$39.00	\$2,527	1.2 acres x 6 6-in lifts @ 9 tests per acre per lift = 64.8 tests	
Laboratory Hydraulic Conductivity	7.2	test	\$198.00	\$1,426	1.2 acres x 6 6-in lifts @ 1 tests per acre per lift = 7.2 tests	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/o hydrometer	7.2	test	\$70.00	\$504		Actual Costs 2011 (TRI Environmental)
Atteberg Limits	7.2	test	\$65.00	\$468		Actual Costs 2011 (TRI Environmental)
Moisture Percent	7.2	test	\$12.00	\$86		Actual Costs 2011 (TRI Environmental)
Subt - Clay Layer Testing				<b>\$6,242</b>	spreading and compacting impervious clay layer; 3-feet in depth using 100% offsite material	
(Subt: Assemb 15.A.7 thru 15.A.11)				<b>\$172,975</b>		

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.12 Remove Separator Berm</b>						
Separator Berm Length	445	LF			Excavation assume 80 CY yards per hour	
Separator Berm Volume	4138	CY			Assume 10ft High x 5ft wide at top x 2H:1V side slopes = 250 CF/LF /27= 9.3 CY/LF	
Calculation of LCYs in Berm Area	5173	LCY			4,138 BCY x 1.25 swell factor = 5,173 LCY	
Laborer	64.6	hours	\$39.00	\$2,519	5,173 CY @ 80 CY/hr = 64.6 hours @ 1 units/crew = 64.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	64.6	hours	\$45.00	\$2,907	5,173 CY @ 80 CY/hr = 64.6 hours @ 1 units/crew = 64.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Excavator	64.6	hours	\$84.09	\$5,432	5,173 CY @ 80 CY/hr = 64.6 hours @ 1 units/crew = 64.6 hours	RSM/HC p. 467 (line item 01 54 33 20 0320)
Driver	64.6	hours	\$45.00	\$2,907	5,173 CY @ 80 CY/hr = 64.6 hours @ 1 units/crew = 64.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dump Truck (20-cy load)	64.6	hours	\$24.78	\$1,601	5,173 CY @ 80 CY/hr = 64.6 hours @ 1 units/crew = 64.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Disposal of geo synthetics	0	Ton	\$0.00	\$0	Assumed disposed in active cell	
Disposal of Operation stone	0	CY	\$0.00	\$0	Assumed disposed in active cell	
Clay soils	0	CY	\$0.00	\$0	Will be re-used	
Subt - Berm Removal				<b>\$15,366</b>		
(Subt: Assemb 15.A.12)				<b>\$15,366</b>		
<b>15.A.13 Install perimeter berm Liner System</b>						
<i>Base Liner</i>						
Interface Friction Testing (Base GCL/NW-textile)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base GCL/80-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base 80-Mil/Geocomp)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base Clay/80-Mil)	1	test	\$5,055.00	\$5,055	1 test per material type/source	Actual Costs 2011 (TRI Environmental)
Subtotal - Certification				<b>\$20,220</b>		
<b>15.A.14 Secondary 80-mil Geomembrane</b>						
Conformance Testing	1	test	\$98.00	\$98	575 FT long berm by 92 feet from top of slope to tie-in to base liner = 52,900 SF	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.48	\$31,740	66,125 SF @ 1 test/100K = 1.0 tests	2011 Price Quote
Installation	66125	SF	\$0.83	\$54,884	52,900 SF plus 25% lap factor = 66,125 SF	2011 Price Quote
Subt - Secondary 80-mil Geomembrane				<b>\$86,722</b>		
<b>15.A.15 Geocomposite</b>						
Conformance Testing	1	test	\$300.00	\$300	66,125 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.38	\$25,128	52,900 SF plus 25% lap factor = 66,125 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Installation	66125	SF	\$0.32	\$21,160	52,900 SF plus 25% lap factor = 66,125 SF	2010 Average of two bids
Subt - Geocomposite				<b>\$46,588</b>		
<b>15.A.16 Secondary Granular layer</b>						
Quantity					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 1 foot (in one 12-inch lift)	
Pre-Qualification Testing				\$0	1-foot thick granular layer: 445 ft cell floor by 50 ft width = 22,250 CF/27 = 824 CY	
Laborer	6.6	hour	\$39.00	\$257	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	6.6	hour	\$45.00	\$297	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	6.6	hour	\$56.38	\$372	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Granular Fill	824	CY	\$27.53	\$22,685	824 CY @ 100% offsite mat'l = 824 CY @	
Subt - Secondary Granular Layer				<b>\$23,611</b>		

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.17 Non-Woven Geotextile</b>						
Conformance Testing	1	test	\$247.00	\$247	66,125 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.16	\$10,580	52,900 SF plus 25% lap factor = 66,125 SF	
Installation	66125	SF	\$0.12	\$7,935	52,900 SF plus 25% lap factor = 66,125 SF	
Subt - Non-Woven Geotextile				<b>\$18,762</b>		
<b>15.A.18 GCL</b>						
					445 ft cell floor by 50 ft floor width & 15 ft up slope = 28,925 SF	
Conformance Testing	1	test	\$235.00	\$235	36,156 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	36156	SF	\$0.46	\$16,632	28,925 SF plus 25% lap factor = 36,156 SF	2011 Actual Cost per SQFT including shipping & tax
Installation	36156	SF	\$0.35	\$12,655	28,925 SF plus 25% lap factor = 36,156 SF	2010 Average of two bids
Subt - GCL				<b>\$29,521</b>		
<b>15.A.19 Primary 80-mil Geomembrane</b>						
Conformance Testing	1	test	\$98.00	\$98	66,125 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.48	\$31,740	52,900 SF plus 25% lap factor = 66,125 SF	2011 Price Quote
Installation	66125	SF	\$0.83	\$54,884	52,900 SF plus 25% lap factor = 66,125 SF	2011 Price Quote
Destructive Testing				\$0		
Subt - Primary 80-mil Geomembrane				<b>\$86,722</b>		
<b>15.A.20 Geocomposite</b>						
Conformance Testing	1	test	\$300.00	\$300	66,125 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.38	\$25,128	52,900 SF plus 25% lap factor = 66,125 SF	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Installation	66125	SF	\$0.32	\$21,160	52,900 SF plus 25% lap factor = 66,125 SF	2010 Average of two bids
Subt - Geocomposite				<b>\$46,588</b>		
<b>15.A.21 Granular layer</b>						
Quantity					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 1 foot (in one 12-inch lift) 1-foot thick granular layer: 445 ft cell floor by 50 ft width = 22,250 CF/27 = 824 CY	
Pre-Qualification Testing				\$0		
Laborer	6.6	hour	\$39.00	\$257	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	6.6	hour	\$45.00	\$297	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	6.6	hour	\$56.38	\$372	824 CY @ 125 LCY/hr = 6.6 hours @ 1.0 units/crew = 6.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Material	824	CY	\$27.53	\$22,685	824 CY @ 100% offsite mat'l = 824 CY	
Subt - Primary Granular Layer				<b>\$23,611</b>		
<b>15.A.22 Non-Woven Geotextile</b>						
Conformance Testing	1	test	\$247.00	\$247	66,125 SF @ 1 test/100K = 1.0 tests	Actual Costs 2011 (TRI Environmental)
Material	66125	SF	\$0.16	\$10,580	52,900 SF plus 25% lap factor = 66,125 SF	
Installation	66125	SF	\$0.12	\$7,935	52,900 SF plus 25% lap factor = 66,125 SF	
Subt - Non-Woven Geotextile				<b>\$18,762</b>		

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.23 Select Fill (Ops Layer)</b>						
Quantity - Cell Floor					1-foot thick select fill layer: 445 ft cell floor by 50 ft width = 22,250 CF/27 = 824 CY	
Quantity - Side Slope					2-foot thick select fill layer: 575 ft cell side slope by 42 ft width = 48,300 CF/27 = 1,789 CY	
Pre-Qualification Testing				\$0		
Laborer	20.9	hour	\$39.00	\$815	2613 CY @ 125 LCY/hr = 20.9 hours @ 1.0 units/crew = 20.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	20.9	hour	\$45.00	\$941	2613 CY @ 125 LCY/hr = 20.9 hours @ 1.0 units/crew = 20.9 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Dozer (200 hp)	20.9	hour	\$56.38	\$1,178	2613 CY @ 125 LCY/hr = 20.9 hours @ 1.0 units/crew = 20.9 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Select Fill	2613	CY	\$24.83	\$64,881	2613 CY @ 100% offsite mat'l = 2613 CY	
Subt - Select Fill (Ops Layer)				<b>\$67,815</b>		
(Subt: Assemb 15.A.13 thru 15.A.23)				<b>\$468,921</b>		
<b>15.A.24 Clay Liner Anchor Trench Perimeter Road</b>						
Quantity					production rate = 125 cy/hr, RSM/SWL p. 57 (02315-505-0010); depth = 1 foot (in 6-inch lifts) 20 ft by 575 ft long perimeter berm and one ft (2 six-inch lifts) = 426 CY	Permit Drawings 5 and 15
Laborer	2.3	hour	\$39.00	\$90	575 LCY @ 125 LCY/hr = 4.6 hours @ 0.5 units/crew = 2.3 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	9.2	hour	\$45.00	\$414	575 LCY @ 125 LCY/hr = 4.6 hours @ 2 units/crew = 9.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Loader, Track	4.6	hour	\$30.03	\$138	575 LCY @ 125 LCY/hr = 4.6 hours @ 1 units/crew = 4.6 hours	RSM/HC p. 469 (line item 01 54 33 20 4730)
Dozer (200 hp)	4.6	hour	\$56.38	\$259	575 LCY @ 125 LCY/hr = 4.6 hours @ 1 units/crew = 4.6 hours	RSM/HC p. 468 (line item 01 54 33 20 4260)
Clay Fill	575	LCY	\$18.00	\$10,350	426 BCY plus 35% comp fact = 575 LCY x 100% offsite mat'l = 575 LCY	
Subt - Spreading Clay Layer				<b>\$11,251</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.25 Clay Layer Compaction</b>						
Laborer	1.8	hour	\$39.00	\$70	575 LCY @ 165 LCY/hr = 3.5 hours @ 0.5 units/crew = 1.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Equipment Operator (Medium)	4.4	hour	\$45.00	\$198	575 LCY @ 165 LCY/hr = 3.5 hours @ 1.25 units/crew = 4.4 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Landfill Compactor (220 hp)	3.5	hour	\$75.60	\$265	575 LCY @ 165 LCY/hr = 3.5 hours @ 1 units/crew = 3.5 hours	RSM/HC p. 468 (line item 01 54 33 20 3300)
Vibratory Steel Drum, Diesel	1.8	hour	\$25.70	\$46	575 LCY @ 165 LCY/hr = 3.5 hours @ 50% top lift only = 1.8 hours	RSM/HC p. 468 (line item 01 54 33 20 3320)
Subt - Compacting Clay Layer				<b>\$579</b>	BCY = bank (in situ) compacted material; LCY = loose (ex situ) uncompacted material	
<b>15.A.26 Clay Layer Testing</b>						
Technician	10	hour	\$38.00	\$380	nine samples per 6-inch lift per acre; two six-inch lifts; one foot of depth; 0.25 hrs/samp for 2 techs 20 samp @ 0.25 hrs/samp = 5.0 hours @ 2 units/crew = 10.0 hours	technician rate: rate 2011 3rd party quote
In situ Nuclear Density Test	18	test	\$39.00	\$702	0.25 acres x 2 6-in lifts @ 9 tests per lift = 18.0 tests	
Laboratory Hydraulic Conductivity	2	test	\$198.00	\$396	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Sieve Analysis w/o hydrometer	2	test	\$70.00	\$140	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Atteberg Limits	2	test	\$65.00	\$130	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Moisture Percent	2	test	\$12.00	\$24	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Wet Density	2	test	\$110.00	\$220	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Dry Density	2	test	\$110.00	\$220	0.25 acres x 2 6-in lifts @ 1 tests per lift = 2.0 tests	Actual Costs 2011 (TRI Environmental)
Subt - Clay Layer Testing				<b>\$2,212</b>		
(Subt: Assemb 15.A.24 thru 15.A.26)				<b>\$14,042</b>	spreading and compacting impervious clay layer; 1-foot in depth using 100% offsite material	

**15.A RMU-2 Landfill Closure 1-Cell (Berm)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>15.A.27 QA/QC Monitoring/Certification</b>						
<i>Base Liner</i>						
QA/QC Monitoring/Certification	3	acre	\$25,700.00	\$77,100	52,900 SF per layer x 2 layers = 105,800 SF = 2.5 acres. Say approximately 3 acres.	Actual cost 2010/2011 (Ensol, Inc.)
Subtotal - Certification				<b>\$77,100</b>		
<i>(Subt: Assemb 15.A.27)</i>				<b>\$77,100</b>		
<b>15.A Perimeter Berm Construction</b>						
				<b>\$1,344,449</b>		
<i>(estimated cost per linear foot)</i>	575.0	LF @	<b>\$ 2,338.17</b>	<i>n/a</i>	<i>converting cell separator berm to perimeter berm for closure prior to full buildout Cell 20</i>	

**Unit Rates RMU-2  
Closure Cost Estimate  
CWM Chemical Services, LLC, Model City, New York**

2011 Unit Rates are based on actual costs for contractor capping 10.0 acres of RMU-1 during Phase VII Final Cover construction.

**Basis:**

**UNIT RATES (THIRD PARTY COSTS)**

RMU-1 CLOSURE	2011		Basis of Production and Quantities for In-House Estimate
	UOM	Price	
<b>WASTE GRADING</b>			
Final waste grading & surface preparation:	acre	\$ 5,000	Actual 2010 costs/site experience using site personnel
<b>GRADING LAYER</b>			
Load, haul, place, grade, grading layer:	CY	\$ 10.00	Actual Quoted Cost 2011 (Tri-C, Inc.) for placement of grading layer (\$10/CY)
Purchase/delivery of general fill from off-site source =	CY	\$ 11.00	Actual Quoted Cost 2011 (Tri-C, Inc.) for providing of grading layer (\$11/CY)
Grading layer surface preparation:	acre	\$ 10,000.00	Actual cost incurred for 2010 activities
<b>EARTHWORKS CONTRACTOR MOB/DEMOB</b>	acre	\$ 37,750.00	Average of two bids (third bid disqualified due to non-conformity)
<b>GEOSYNTHETICS</b>			
<b>Geosynthetic Clay Liner (GCL)</b>			
Material Cost	SQFT	\$ 0.46	2011 Actual Cost per SQFT including shipping & tax
Installation Cost	SQFT	\$ 0.35	2010 Average of two bids
Subtotal	<b>SQFT</b>	<b>\$ 0.81</b>	
<b>GEOSYNTHETICS CONTRACTOR MOB/DEMOB</b>	acre	\$ 13,750.00	2010 Average of two bids
<b>40 mil Roughened HDPE geomembrane (textured 2 sided)</b>			
Material Cost	SQFT	\$ 0.21	2010 Actual Cost per SQFT including tax & shipping
Installation Cost	SQFT	\$ 0.46	2010 Average of two bids
Subtotal	<b>SQFT</b>	<b>\$ 0.67</b>	
<b>80 mil Roughened HDPE geomembrane (textured 2 sided)</b>			
Material Cost	SQFT	\$ 0.48	
Installation Cost	SQFT	\$ 0.83	
Subtotal	<b>SQFT</b>		
Geosynthetic Installation at Standpipe Riser	<b>each</b>	\$ 1,000.00	Average of two bids (third bid disqualified due to non-conformity)
Geosynthetic Installation at Riser Vault	<b>each</b>	\$ 1,000.00	Average of two bids (third bid disqualified due to non-conformity)
<b>Geocomposite</b>			
Material Cost	SQFT	\$ 0.38	2011 Actual Blended cost (TN240 & TN350) including shipping & handling
Installation Cost (w/Sewing)	SQFT	\$ 0.32	2010 Average of two bids
Subtotal	<b>SQFT</b>	<b>\$ 0.70</b>	

**Unit Rates RMU-2  
Closure Cost Estimate  
CWM Chemical Services, LLC, Model City, New York**

2011 Unit Rates are based on actual costs for contractor capping 10.0 acres of RMU-1 during Phase VII Final Cover construction.

**Basis:**

**UNIT RATES (THIRD PARTY COSTS)**

RMU-1 CLOSURE		2011		Basis of Production and Quantities for In-House Estimate
<b>ANCHOR TRENCHES</b>				
Permanent		acre	\$ 1,100	Quoted price from Tri-C
Temporary		acre	\$ 4,500	Quoted price from Tri-C
Subtotal		<b>acre</b>	<b>\$ 5,600</b>	
<b>GEOTEXTILE MATERIAL - FINAL COVER</b>				
		acre	\$ 1,220	Quoted price from Tri-C
<b>GEOTEXTILE MATERIAL - BASELINER</b>				
Material Cost		SQFT	\$ 0.16	
Installation Cost		SQFT	\$ 0.12	
Subtotal		<b>SQFT</b>	<b>\$ 0.28</b>	
<b>PERIMETER DITCHES AND ROADWAYS</b>				
Perimeter Ditches and Roadways		LF	\$ 12	2010 Average of two bids
<b>UNCLASSIFIED FILL</b>				
Load, haul, place, grade and compact general fill:		CY	\$ 10.00	Actual Quoted Cost 2011 (Tri-C, Inc.) for placement of general fill (\$10/CY)
Purchase/delivery of general fill from off-site source =		CY	\$ 11.00	Actual Quoted Cost 2011 (Tri-C, Inc.) for providing of general fill (\$11/CY)
Test Fill Pad Construction		each	\$ 12,000.00	Actual 2010 costs/site experience
Test Fill Pad QA/QC & Reporting		each	\$ 8,000.00	Actual 2010 costs/site experience
<b>TOPSOIL/VEGETATION</b>				
Load, place, grade, topsoil:seed, fertilize and mulch =		CY	\$ 11.00	2011 Quoted price from Tri-C
Purchase/delivery of topsoil from off-site source =		CY	\$ 15.00	Quoted price from Tri-C
Purchase and Installation of erosion control matting =		SY	\$ 12.50	Average of two bids (third bid disqualified due to non-conformity)
Subtotal Topsoil/Vegetation		<b>CY</b>	<b>\$ 38.50</b>	
<b>DRAINAGE</b>				
Provide, install final cover drainage tile system		LF	\$ 15.06	Average of two bids (third bid disqualified due to non-conformity)
Provide, install final cover surface water downflume		each	\$ 23,625	6,300 SQFT x \$3.75/SQFT = \$23,625
<b>BASELINER CLAY</b>				
		CY	\$ 18	
<b>DRAINAGE STONE BASELINER - Material delivered</b>				
		CY	\$ 27.53	
<b>SELECT FILL (OPERATIONS STONE) - Material delivered</b>				
		CY	\$ 24.83	

**Unit Rates RMU-2  
Closure Cost Estimate  
CWM Chemical Services, LLC, Model City, New York**

2011 Unit Rates are based on actual costs for contractor capping 10.0 acres of RMU-1 during Phase VII Final Cover construction.

**Basis:**

**UNIT RATES (THIRD PARTY COSTS)**

<b>RMU-1 CLOSURE</b>		<b>2011</b>	<b>Basis of Production and Quantities for In-House Estimate</b>
<b>FINAL COVER CQA, SURVEYING AND CQA REPORT</b>	acre	\$ 25,700	2010 Average of two bids
<b>BASELINER CQA, SURVEYING AND CQA REPORT</b>	acre	\$ 51,400	
<b>CONSTRUCTION CONTRACTOR MOB/DEMOB/ADMIN/SURVEY =</b>	%	5	
<b>DESIGN SUPPORT</b>			
Pre-Construction Design Costs		\$ 25,000	\$25,000 for 22.8 acres
Engineering During Construction		\$ 25,000	\$25,000 for 22.8 acres
<b>CONSTRUCTION MANAGEMENT</b>	acre	\$ 4,500	Quoted price Ensol, Inc
<b>GEOSYNTHETICS CONFORMANCE TESTING</b>			
40-Mil Geomembrane (1/100,000)	sample	\$ 98	Actual Costs 2011 (TRI Environmental)
80-Mil Geomembrane (1/100,000)	sample	\$ 98	Actual Costs 2011 (TRI Environmental)
Geocomposite (1/100,000)	sample	\$ 300	Actual Costs 2011 (TRI Environmental)
GCL (1/100,000)	sample	\$ 235	Actual Costs 2011 (TRI Environmental)
Geotextile (1/100,000)	sample	\$ 247	Actual Costs 2011 (TRI Environmental)
Final Cover			
Interface Friction Testing (GCL/Soil)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (GCL/40-Mil)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (40-Mil/Geocomposite)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Geocomposite/Soil)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Base Liner			
Interface Friction Testing (Base GCL/NW-textile)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base GCL/80-Mil)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base 80-Mil/Geocomp)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
Interface Friction Testing (Base Clay/80-Mil)	sample	\$ 5,055	Actual Costs 2011 (TRI Environmental)
<b>MISCELLANEOUS</b>			
200 GPM Transfer Pump	each	\$6,194	2004 DEC Rate * Implicit Deflator
Pump/Motor Replace/Maint/Repair	each	\$2,294.00	2004 DEC Rate * Implicit Deflator

**Unit Rates RMU-2**  
**Closure Cost Estimate**  
**CWM Chemical Services, LLC, Model City, New York**

2011 Unit Rates are based on actual costs for contractor capping 10.0 acres of RMU-1 during Phase VII Final Cover construction.

**Basis:**

**UNIT RATES (THIRD PARTY COSTS)**

RMU-1 CLOSURE		2011		Basis of Production and Quantities for In-House Estimate
<b>SOIL PREQUALIFICATION &amp; CONSTRUCTION TESTING</b>				
Particle Size Dist. w/o hydr.		sample	\$ 70	Actual Costs 2011 (TRI Environmental)
Particle Size Dist. w/o hydr.		sample	\$ 100	Actual Costs 2011 (TRI Environmental)
Modified Proctor		sample	\$ 120	Actual Costs 2011 (TRI Environmental)
Standard Proctor		sample	\$ 115	Actual Costs 2011 (TRI Environmental)
Dir. Shear (3 normal stresses/set)		sample	\$ 500	Actual Costs 2011 (TRI Environmental)
Atterberg Limits		sample	\$ 65	Actual Costs 2011 (TRI Environmental)
Remolded Permeability		sample	\$ 198	Actual Costs 2011 (TRI Environmental)
Moisture Content		sample	\$ 12	Actual Costs 2011 (TRI Environmental)
Organic Content		sample	\$ 55	Actual Costs 2011 (TRI Environmental)
Soil Classification		sample	\$ 10	Actual Costs 2011 (TRI Environmental)

**Rate Adjustment for inflation:**

2011 Rate = 110.654 (2010 GDP) ÷ 96.77 (2004 GDP) = 1.14347421721608

1.147

Adjust 2004 DEC rates to 2011 rates based on implicit deflator

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area				6.9 acres =	33,396 SY =	300,564 SF =	300.6 MSF	31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs
RMU-2 Parameters - Fencing								0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch	2,290 linear feet	585+585+560+560 = 2,290	
Drainage Tile System	2,939 linear feet	6.9 acres * 426 LF/acre = 2,939 LF	
MSE Wall	1,665 linear feet		

<b>PCC-9.01.1 Annual Visual Inspections</b>						make visual inspections and log results; two persons required				
<i>Post-Closure</i>										
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x	2.0 insp/year x	2 per crew/	8 facility units = 1.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x	1.8 insp/year x	2 per crew =	7.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns	
Engineer - MSE Wall Inspection	8	hours	\$130.00	\$1,040	\$0	8 hrs/insp x	1.0 insp/year x	1 per crew =	8.0 hours	
Subtotal - Annual Inspections				<b>\$1,830</b>	<b>\$0</b>	RMU-2 post-closure inspections				
<i>Perpetual Care</i>										
Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans										
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x	1.0 insp/year x	2 per crew/	8 facility units = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x	1.04 insp/year x	2 per crew =	4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns	
Engineer - MSE Wall Inspection	8	hours	\$130.00	\$1,040	\$1,040	8 hrs/insp x	1.0 insp/year x	1 per crew =	8.0 hours	
Subtotal - Annual Inspections Perp-Care				<b>\$0</b>	<b>\$1,504</b>	RMU-2 perpetual care inspections				
(Subt: Assemb PCC-9.01.1)				<b>\$1,830</b>	<b>\$1,504</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units				

<b>PCC-9.01.2 Perimeter Fence Maint.</b>						one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected			
Subt - Perimeter Fence Maint.				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility fence repair is already provided in the post closure estimate for 8 other units</i>			
(Subt: Assemb PCC-9.01.2)				<b>\$0</b>	<b>\$0</b>				

<b>PCC-9.01.3 Maint. Benchmarks/Surv</b>						Annual inspection only			
Maint of Benchmarks & Surveying	0	acres	\$0.00	\$0	\$0	Included in PCC-9.01.1			
Subt - Benchmarks & Surveying				<b>\$0</b>	<b>\$0</b>				
(Subt: Assemb PCC-9.01.3)				<b>\$0</b>	<b>\$0</b>				

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.01.4 Groundwater Monitoring</b>							
						sampling crew composed of two technicians; 9 monitoring wells	
Monit'g Events & Samples/Event						0.0 quart'ly + 16.0 semi-ann + 1.0 b-ann'l x 1.05 each = 17.3 samp	
Post-Closure							
Technician	34.6	hours	\$38.00	\$1,315	\$0	17.3 samps @ 1.0 hrs/samp x 2 per crew = 34.6 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	17.3	samp	\$25.00	\$433	\$0	17.3 samps	bottles, shipping supplies
VOCs	17.3	samp	\$105.00	\$1,817	\$0	17.3 samps	Average of three quotes
Subt - GW Monitoring				<b>\$3,564</b>	<b>\$0</b>	post closure groundwater monitoring	
<b>PCC-9.01.5 Outfalls 002,003,004 SPDES Mon</b>							
Weekly Sampling Events						production rate = 2 hours per sample for a one-person crew: each year of monitoring during closure	
Subt - SPDES Outfall Sampling & Analysis						12 months = 52 weeks @ 3 outfalls @ 1 sample/OF = 156 samples	
						The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units	
<b>PCC-9.01.6 Discharge Monitoring Report</b>							
Subt - Discharge Monitoring Report						Monthly Discharge Monitoring Reports	
						submittal of SPDES Permit required Discharge Monitoring Report (DMR)	
						The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units	
(Subt: Assemb PCC-9.01.4 thru 9.01.6)						<b>\$3,564 \$391</b> RMU-2 groundwater & stormwater monitoring activities	
<b>PCC-9.01.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.0345	acre	\$20,973.33	\$724	\$724	6.9 acre @ 0.5% per year = 0.0345 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$724</b>	<b>\$724</b>	RMU-2 upper cap maintenance and replacement	
<b>PCC-9.01.8 Mowing/Grooming</b>							
Mowing	300.6	MSF	\$3.21	\$966	\$966	300.6 MSF @ 1.0 per year = 300.6 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	60.1	MSF	\$3.82	\$230	\$230	300.6 MSF @ 1.0 per 300.6 MSF 60.1 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$1,195</b>	<b>\$1,195</b>	RMU-2 mowing and fertilizing	
(Subt: Assemb PCC-9.01.7 thru 9.01.8)						<b>\$1,919 \$1,919</b> RMU-2 cap maintenance activities: post-closure & perpetual care frequency are equal	
<b>PCC-9.01.9 MSE Wall Maint.</b>							
MSE Wall Maint.	1665	LF	\$3.03	\$5,045	\$5,045	\$3.03 based on 6,600 LF for 6-cell scenario. 1,665 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$5,045</b>	<b>\$5,045</b>	RMU-2 MSE Wall maintenance	
(Subt: Assemb PCC-9.01.9)						<b>\$5,045 \$5,045</b>	

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.01.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	26049	gal	\$0.0178	\$464	\$0	26,049 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	5172	gal	\$0.0178	\$0	\$92	5,172 gallons perpetual care average years 31-60 Taken from RMU-2 2012 LeachGenMode	
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	12	hours	\$39.00	\$468	\$468	1 hrs/mon x 12 mon/year = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	12	hours	\$38.00	\$456	\$456	1 hrs/mon x 12 mon/year = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	2.1	sample	\$105.00	\$221	\$221	1 sump x 1.05 per sump x 2.0 event/yr = 2.1 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	2.1	sample	\$188.00	\$395	\$395	1 sump x 1.05 per sump x 2.0 event/yr = 2.1 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Anaylsis	2.1	sample	\$133.33	\$280	\$280	1 sump x 1.05 per sump x 2.0 event/yr = 2.1 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	2.1	sample	\$105.00	\$221	\$221	1 sump x 1.05 per sump x 2.0 event/yr = 2.1 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	1.1	sample	\$188.00	\$207	\$207	1 sump x 1.05 per sump = 1.0 event/yr = 1.1 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	1.1	sample	\$633.33	\$697	\$697	1 sump x 1.05 per sump = 1.0 event/yr = 1.1 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	0.2	pump	\$1,382.00	\$276	\$276	1 pumps x 20.0% pu/yr = 0.2 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.15	pump	\$850.00	\$128	\$128	1 pumps x 15.0% pu/yr = 0.15 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	0.35	hose	\$211.54	\$74	\$74	0.35 pumps x 1 per pump = 0.35	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	3.5	CF	\$12.45	\$44	\$44	0.35 pu/hos @ 10 CF/pump = 3.5 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	0.8	LF	\$53.25	\$43	\$43	160 LF @ 0.5% per year = 0.8 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	0.26	CF	\$12.45	\$3	\$3	0.8 LF @ 0.33 CF/LF = 0.26 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	5.24	LF	\$73.50	\$385	\$385	1047 LF @ 0.5% per year = 5.24 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	2.62	CF	\$12.45	\$33	\$33	5.24 LF @ 0.50 LF/drum = 2.62 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	700.8	LF	\$2.14	\$1,500	\$1,500	700.8 LF @ 1.0 events/yr = 700.8 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				<b>\$8,810</b>	<b>\$8,438</b>	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.01.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in unit rate
Subt - AWTS Operation				<b>\$0</b>	<b>\$0</b>	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.01.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				<b>\$0</b>	<b>\$0</b>	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.01.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				<b>\$0</b>	<b>\$0</b>	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.01.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Batch Sampling Events						1 events @ 3 samp/evnt= 3 samples	sampling & analysis prior to pond discharge
Subt - Pond Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.01.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one predischage qualification report	
Subt - S&A Cert'n & Report				\$0	\$0	<i>diver(s) to check discharge pipe; also engineer's predischage qualification report</i>	
						<i>The Cost for pond qualifications report and diver inspections of outfall is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.01.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
FAC Pond 1/2 Inventory in Gallons		gals	n/a			45.8 total hours req'd to pump	& site waters
						<i>transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is</i>	
Subtotal - Pump FAC Pond 1/2				\$0	\$0	<i>already provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.01.10 thru 9.01.16)				\$8,810	\$8,438	<i>RMU-2 share of annual O&amp;M and capital costs for leachate collection &amp; treatment: provided in post closure cost estimate for 7 other units at facility</i>	
<b>PCC-9.01.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.01.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.01.19 N/A</b>							
Subt - N/A				\$0	\$0		
(Subt: Assemb PCC-9.01.17 thru 9.01.19)				\$0	\$0	RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS	
<b>PCC-9.01.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
Internal & External Inspections						16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 16 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.01.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
External Only Inspections						30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 32 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.01.20 thru 9.01.21)				\$0	\$0	RMU-2 share of annual tank assessment costs: post-closure & perpetual care frequency are equal	
<b>PCC-9.01.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.23	pump	\$900.00	\$207	\$207	9 pumps @ 2.5% per year = 0.23 pumps/yr	Site experience third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.23	CF	\$12.45	\$3	\$3	0.23 pumps @ 1.0 CF/pump = 0.23 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.23	pad	\$131.50	\$30	\$30	9 pads @ 2.5% per year = 0.23 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	0.46	CF	\$12.45	\$6	\$6	0.23 pads @ 2.0 CF/pad = 0.46 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.23	each	\$371.63	\$85	\$85	9 covers @ 2.5% per year = 0.23 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.12	CF	\$12.45	\$1	\$1	0.23 covers @ 0.5 CF/cover = 0.12 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$409	\$409	<i>monitoring well pump maintenance and replacement</i>	
(Subt: Assemb PCC-9.01.22)				\$409	\$409	<i>RMU-2 mon well pump maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.01.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
<i>RMU-2 Drainage Ditches</i>						Perimeter Ditch + Drainage Tile System = 2,290 + 2,939 = 5,229 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	<i>drainage ditches in non-specific areas of facility</i>
<i>RMU-2 Downchutes</i>						685 LF 26" pipe 266 LF 6" pipe	
Drainage Ditch Repair	0.012	acre	\$5,698.00	\$68	\$68	5,229 LF x 10 ft/LF = 1.2 acres @ 1.0% per year = 0.012 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	34.25	LF	\$2.14	\$73	\$73	685 LF x 5.0% per year = 34.25 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	13.3	LF	\$2.14	\$28	\$28	266 LF x 5.0% per year = 13.3 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$170</b>	<b>\$170</b>	<i>stormwater drainage ditch repair</i>	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.01.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
<i>RMU-2 Drainage Ditches</i>						5,229 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	<i>drainage ditches in non-specific areas of facility</i>
Drainage Ditch Sediment Cleaning	6.45	CY	\$2.38	\$15	\$15	5,229 LF x 10.0 ft/LF x 0.333 feet (4")/27 = 645.5 CY @ 1%/yr = 6.45 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	2.2	miles	\$3.25	\$7	\$7	8.7 tons @ 20 tons/load = 0.435 loads @ 5 miles per load = 2.2 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	8.7	ton	\$35.00	\$305	\$305	6.45 CY @ 1.35 ton/CY = 8.7 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$327</b>	<b>\$327</b>	<i>stormwater drainage ditch cleaning</i>	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.01.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
<i>Basin No. 1</i>						140625 SF div by 8 units = 17578 SF	
<i>Basin No. 2</i>						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	<i>facility stormwater basin cleaning</i>	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.01.26 Culvert Maint/Replace</b>						average culvert = 40 feet in length and 18 inches in diameter; replace one 40-foot sections/year	
<i>RMU-2 Culverts</i>						1 culverts x 40 feet long = 40 LF	culverts specific to RMU-2 unit
<i>Facility-wide Culverts</i>						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	<i>culverts in non-specific areas of facility</i>
Culvert Cleaning - 18" diameter avg	40	LF	\$2.14	\$86	\$86	40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	40	LF	\$11.61	\$464	\$464	40.0 LF @ 1 culvert/yr = 40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)	0	LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	30	CY	\$2.96	\$89	\$89	40.0 LF x 0.75 CY/LF = 30 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	30	CY	\$3.86	\$116	\$116	30 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$755</b>	<b>\$755</b>	<i>culvert maintenance and replacement</i>	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.01.23 thru 9.01.26)				<b>\$1,252</b>	<b>\$1,252</b>	<i>RMU-2 storm drainage maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.01: RMU-2 (1-Cell)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.01.27 Road Maint/Replace</b>						gravel roads = 15 feet wide; asphalt roads = 20 feet wide	
RMU-2 Gravel Roads						2290 LF x 15 feet wide/9 SF/SY = 3,817 SY @ 2% per year = 76.3 SY	
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility
RMU-2 Gravel Road Repair	76.3	SY	\$3.12	\$238	\$238	16.5 SY	DEC 2004 rate * deflator (2004-2010)
Facility-wide Asphalt Roads	0	SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Subt - Road Maint/Replacement				<b>\$238</b>	<b>\$238</b>	road maintenance and replacement	
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.01.27)				<b>\$238</b>	<b>\$238</b>	RMU-2 road maintenance & replacement	

Total Non-Super hours 89.4

<b>PCC-9.01.28 PPE Use/H&amp;S Planning</b>						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	8.4	days	\$0.00	\$0	\$0	89.4 hours @ 8 hr/day = 11.2 days @ 75% "D" days = 8.4 days	75% of non-supv hrs in Level D (used facility price: \$0/day)
PPE Usage - Mod Level C	1.7	days	\$9.00	\$15	\$15	89.4 hours @ 8 hr/day = 11.2 days @ 15% "C" days = 1.7 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)
PPE Usage - Level C	1.1	days	\$25.00	\$28	\$28	89.4 hours @ 8 hr/day = 11.2 days @ 10% "C" days = 1.1 days	10% of non-supv hrs in Level C (used facility price: \$25/day)
Health & Safety Officer	2.2	hours	\$75.00	\$165	\$165	89.4 hours @ 2.5% hr/hr = 2.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$208</b>	<b>\$208</b>		
<b>PCC-9.01.29 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>		
(Subt: Assemb PCC-9.01.28 thru 9.01.29)				<b>\$208</b>	<b>\$208</b>	supervision, health & safety, and certification	

<b>PCC 9.01 (1-Cell): RMU-2 Direct Cost</b>				<b>\$23,274</b>	<b>\$19,404</b>		
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**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area 13.1 acres = 6,404 SY = 570,636 SF = 570.6 MSF 31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs

RMU-2 Parameters - Fencing 0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch 3,700 linear feet (710+560)+585+560+300+710+275 = 3,700

Drainage Tile System 5,580 linear feet 13.1 acres \* 426 LF/acre = 5,580 LF

MSE Wall 2095 linear feet

<b>PCC-9.02.1 Annual Visual Inspections</b>						make visual inspections and log results; two persons required		
<i>Post-Closure</i>								
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x 1.7 insp/year x 2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x 1.7 insp/year x 2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x 2.0 insp/year x 2 per crew/	8 facility units = 1.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x 1.8 insp/year x 2 per crew =	7.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above		this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	10	hours	\$130.00	\$1,300	\$0	10 hrs/insp x 1.0 insp/year x 1 per crew =	10.0 hours	
Subtotal - Annual Inspections				<b>\$2,090</b>	<b>\$0</b>	RMU-2 post-closure inspections		
<i>Perpetual Care</i>						Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans		
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x 1.0 insp/year x 2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x 1.0 insp/year x 2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x 1.0 insp/year x 2 per crew/	8 facility units = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x 1.04 insp/year x 2 per crew =	4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above		this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	10	hours	\$130.00	\$0	\$1,300	10 hrs/insp x 1.0 insp/year x 1 per crew =	10.0 hours	
Subtotal - Annual Inspections Perp-Care				<b>\$0</b>	<b>\$1,764</b>	RMU-2 perpetual care inspections		
(Subt: Assemb PCC-9.02.1)				<b>\$2,090</b>	<b>\$1,764</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units		

<b>PCC-9.02.2 Perimeter Fence Maint.</b>						one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected		
Subt - Perimeter Fence Maint.				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility fence repair is already provided in the post closure estimate for 8 other units</i>		
(Subt: Assemb PCC-9.02.2)				<b>\$0</b>	<b>\$0</b>			

<b>PCC-9.02.3 Maint. Benchmarks/Surv</b>						Annual inspection only		
Maint of Benchmarks & Surveying	0	acres	\$0.00	\$0	\$0	Included in PCC-9.02.1		
Subt - Benchmarks & Surveying				<b>\$0</b>	<b>\$0</b>			
(Subt: Assemb PCC-9.02.3)				<b>\$0</b>	<b>\$0</b>			

**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.02.4 Groundwater Monitoring</b>						<i>sampling crew composed of two technicians; 21 monitoring wells</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp</i>	<i>includes 5% QA sampling</i>
<i>Post-Closure</i>							
Technician	85	hours	\$38.00	\$3,230	\$0	42.5 samps @ 1.0 hrs/samp x 2 per crew = 85 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	\$0	42.5 samps	bottles, shipping supplies
VOCs	42.5	samp	\$105.00	\$4,463	\$0	42.5 samps	Average of three quotes
Subt - GW Monitoring				<b>\$8,755</b>	<b>\$0</b>	<i>post closure groundwater monitoring</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>21 wells @ sample/5 years 1.05 each = 4.4 samp/yr</i>	
<i>Perpetual Care</i>						<i>Perpetual care groundwater monitoring once every five years</i>	
Technician	8.8	hours	\$38.00	\$0	\$334	4.4 samps @ 1.0 hrs/samp x 2 per crew = 8.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	4.4	samp	\$25.00	\$0	\$110	4.4 samples	bottles, shipping supplies
VOCs	4.4	samp	\$105.00	\$0	\$462	4.4 samples	Average of three quotes
Subt - GW Monitoring				<b>\$0</b>	<b>\$906</b>	<i>perpetual care groundwater monitoring</i>	
<b>PCC-9.02.5 Outfalls 002,003,004 SPDES Mon</b>						<i>production rate = 2 hours per sample for a one-person crew: each year of monitoring during closure</i>	
<i>Weekly Sampling Events</i>						<i>12 months = 52 weeks @ 3 outfalls @ 1 sample/OF = 156 samples</i>	<i>sampling &amp; analysis according to SPDES Permit</i>
Subt - SPDES Outfall Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
<b>PCC-9.02.6 Discharge Monitoring Report</b>						<i>Monthly Discharge Monitoring Reports</i>	
Subt - Discharge Monitoring Report				<b>\$0</b>	<b>\$0</b>	<i>submittal of SPDES Permit required Discharge Monitoring Report (DMR)</i>	
						<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
(Subt: Assemb PCC-9.02.4 thru 9.02.6)				<b>\$8,755</b>	<b>\$906</b>	<i>RMU-2 groundwater &amp; stormwater monitoring activities</i>	

<b>PCC-9.02.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.0655	acre	\$20,973.33	\$1,374	\$1,374	13.1 acre @ 0.5% per year = 0.0655 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$1,374</b>	<b>\$1,374</b>	<i>RMU-2 upper cap maintenance and replacement</i>	
<b>PCC-9.02.8 Mowing/Grooming</b>							
Mowing	570.6	MSF	\$3.21	\$1,833	\$1,833	570.6 MSF @ 1.0 per year = 570.6 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	114.1	MSF	\$3.82	\$436	\$436	570.6 MSF @ 1.0 per 5.0 years = 114.1 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$2,269</b>	<b>\$2,269</b>	<i>RMU-2 mowing and fertilizing</i>	
(Subt: Assemb PCC-9.02.7 thru 9.02.8)				<b>\$3,643</b>	<b>\$3,643</b>	<i>RMU-2 cap maintenance activities: post-closure &amp; perpetual care frequency are equal</i>	

<b>PCC-9.02.9 MSE Wall Maint.</b>						<i>\$3.03 based on 6,600 LF for 6-cell scenario.</i>	
MSE Wall Maint.	2095	LF	\$3.03	\$6,348	\$6,348	2,095 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$6,348</b>	<b>\$6,348</b>	<i>RMU-2 MSE Wall maintenance</i>	
(Subt: Assemb PCC-9.02.9)				<b>\$6,348</b>	<b>\$6,348</b>		

**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.02.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	49454	gal	\$0.0178	\$880	\$0	49,454 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	9819	gal	\$0.0178	\$0	\$175	9,819 gals perpetual care average years 31-60	Taken from RMU-2 2012 LeachGenMode
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at t	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	12	hours	\$39.00	\$468	\$468	1 hrs/mon x 12 mon/year = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	12	hours	\$38.00	\$456	\$456	1 hrs/mon x 12 mon/year = 12 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	4.2	sample	\$105.00	\$441	\$441	2 sumps x 1.05 per sump x 2.0 event/yr = 4.2 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	4.2	sample	\$188.00	\$790	\$790	2 sumps x 1.05 per sump x 2.0 event/yr = 4.2 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Analysis	4.2	sample	\$133.33	\$560	\$560	2 sumps x 1.05 per sump x 2.0 event/yr = 4.2 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	4.2	sample	\$105.00	\$441	\$441	2 sumps x 1.05 per sump x 2.0 event/yr = 4.2 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	2.1	sample	\$188.00	\$395	\$395	2 sumps x 1.05 per sump = 1.0 event/yr = 2.1 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	2.1	sample	\$633.33	\$1,330	\$1,330	2 sumps x 1.05 per sump = 1.0 event/yr = 2.1 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	0.4	pump	\$1,382.00	\$553	\$553	2 pumps x 20.0% pu/yr = 0.4 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.3	pump	\$850.00	\$255	\$255	2 pumps x 15.0% pu/yr = 0.3 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	0.7	hose	\$211.54	\$148	\$148	0.7 pumps x 1 per pump = 0.7	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	7	CF	\$12.45	\$87	\$87	0.7 pu/hos @ 10 CF/pump = 7 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	1.6	LF	\$53.25	\$85	\$85	320 LF @ 0.5% per year = 1.6 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	0.53	CF	\$12.45	\$7	\$7	1.6 LF @ 0.33 CF/LF = 0.53 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	10.5	LF	\$73.50	\$772	\$772	2,094 LF @ 0.5% per year = 10.5 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	5.3	CF	\$12.45	\$66	\$66	10.5 LF @ 0.50 LF/drum = 5.3 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	1402	LF	\$2.14	\$3,000	\$3,000	1,402 LF @ 1.0 events/yr = 1,402 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				\$13,652	\$12,946	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.02.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in unit rate
Subt - AWTS Operation				\$0	\$0	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.02.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				\$0	\$0	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.02.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				\$0	\$0	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.02.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Batch Sampling Events						1 events @ 3 samp/evnt= 3 samples	sampling & analysis prior to pond discharge
Subt - Pond Sampling & Analysis				\$0	\$0	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	

**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.02.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one predischarge qualification report	
Subt - S&A Cert'n & Report				\$0	\$0	diver(s) to check discharge pipe; also engineer's predischarge qualification report	
						The Cost for pond qualifications report and diver inspections of outfall is already provided in the post closure estimate for 7 other units	
<b>PCC-9.02.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
FAC Pond 1/2 Inventory in Gallons		gals	n/a			45.8 total hours req'd to pump	& site waters
						transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is already provided in the post closure estimate for 7 other units	
Subtotal - Pump FAC Pond 1/2				\$0	\$0		
(Subt: Assemb PCC-9.02.10 thru 9.02.16)				\$13,652	\$12,946	RMU-2 share of annual O&M and capital costs for leachate collection & treatment: provided in post closure cost estimate for 7 other units at facility	

<b>PCC-9.02.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.02.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.02.19 N/A</b>							
Subt - N/A				\$0	\$0		
(Subt: Assemb PCC-9.02.17 thru 9.02.19)				\$0	\$0	RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS	

<b>PCC-9.02.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
Internal & External Inspections						16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr	
Subt - Tank Assessments				\$0	\$0	inspection of 16 tanks	
						The Cost for tank assessment is already provided in the post closure estimate for 7 other units	
<b>PCC-9.02.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
External Only Inspections						30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr	
Subt - Tank Assessments				\$0	\$0	inspection of 32 tanks	
						The Cost for tank assessment is already provided in the post closure estimate for 7 other units	
(Subt: Assemb PCC-9.02.20 thru 9.02.21)				\$0	\$0	RMU-2 share of annual tank assessment costs: post-closure & perpetual care frequency are equal	

<b>PCC-9.02.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.53	pump	\$900.00	\$477	\$477	21 pumps @ 2.5% per year = 0.53 pumps/yr	Site experience third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.53	CF	\$12.45	\$7	\$7	0.53 pumps @ 1.0 CF/pump = 0.53 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.53	pad	\$131.50	\$70	\$70	21 pads @ 2.5% per year = 0.53 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	1.1	CF	\$12.45	\$14	\$14	0.53 pads @ 2.0 CF/pad = 1.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.53	each	\$371.63	\$197	\$197	21 covers @ 2.5% per year = 0.53 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.27	CF	\$12.45	\$3	\$3	0.53 covers @ 0.5 CF/cover = 0.27 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$843	\$843	monitoring well pump maintenance and replacement	
(Subt: Assemb PCC-9.02.22)				\$843	\$843	RMU-2 mon well pump maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.02.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
RMU-2 Drainage Ditches						Perimeter Ditch + Drainage Tile System = 3,700 + 5,580 = 9,280 LF	drainage ditches specific to RMU-2 unit
Facility-wide Drainage Ditches						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
RMU-2 Downchutes						685 LF 26" pipe 266 LF 6" pipe	
Drainage Ditch Repair	0.021	acre	\$5,698.00	\$120	\$120	9,280 LF x 10 ft/LF = 2.13 acres @ 1.0% per year = 0.021 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	34.25	LF	\$2.14	\$73	\$73	685 LF x 5.0% per year = 34.25 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	13.3	LF	\$2.14	\$28	\$28	266 LF x 5.0% per year = 13.3 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$221</b>	<b>\$221</b>	<i>stormwater drainage ditch repair</i>	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.02.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
RMU-2 Drainage Ditches						9,280 LF	drainage ditches specific to RMU-2 unit
Facility-wide Drainage Ditches						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
Drainage Ditch Sediment Cleaning	8.24	CY	\$2.38	\$20	\$20	9,280 LF x 10.0 ft/LF x 0.333 feet (4")/27 = 1,145 CY @ 1%/yr = 11.46 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	3.9	miles	\$3.25	\$13	\$13	15.5 tons @ 20 tons/load = 0.77 loads @ 5 miles per load = 3.9 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	15.5	ton	\$35.00	\$543	\$543	11.46 CY @ 1.35 ton/CY = 15.5 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$575</b>	<b>\$575</b>	<i>stormwater drainage ditch cleaning</i>	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.02.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
Basin No. 1						140625 SF div by 8 units = 17578 SF	
Basin No. 2						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	<i>facility stormwater basin cleaning</i>	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.02.26 Culvert Maint/Replace</b>						average culvert = 40 feet in length and 18 inches in diameter; replace one 40-foot sections/year	
RMU-2 Culverts						2 culverts x 40 feet long = 80 LF	culverts specific to RMU-2 unit
Facility-wide Culverts						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	culverts in non-specific areas of facility
Culvert Cleaning - 18" diameter avg	80	LF	\$2.14	\$171	\$171	80 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	40	LF	\$11.61	\$464	\$464	80 LF @ 1 culvert/yr = 40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)	0	LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	30	CY	\$2.96	\$89	\$89	40.0 LF x 0.75 CY/LF = 30 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	30	CY	\$3.86	\$116	\$116	30 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$840</b>	<b>\$840</b>	<i>culvert maintenance and replacement</i>	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.02.23 thru 9.02.26)				<b>\$1,636</b>	<b>\$1,636</b>	RMU-2 storm drainage maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.02: RMU-2 (2-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.02.27 Road Maint/Replace</b>						gravel roads = 15 feet wide; asphalt roads = 20 feet wide	
RMU-2 Gravel Roads						3700 LF x 15 feet wide/ 9 SF/SY = 6167 SY @ 2% per year = 123.3 SY	
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility
RMU-2 Gravel Road Repair	123.3	SY	\$3.12	\$385	\$385	123.3 SY	DEC 2004 rate * deflator (2004-2010)
Facility-wide Asphalt Roads	0	SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Subt - Road Maint/Replacement				<b>\$385</b>	<b>\$385</b>	road maintenance and replacement	
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.02.27)				<b>\$385</b>	<b>\$385</b>	RMU-2 road maintenance & replacement	

Total Non-Super hours 141.8

<b>PCC-9.02.28 PPE Use/H&amp;S Planning</b>						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	13.1	days	\$0.00	\$0	\$0	141.8 hours @ 8 hr/day = 17.7 days @ 75% "D" days = 13.3 days	75% of non-supv hrs in Level D (used facility price: \$0/day)
PPE Usage - Mod Level C	2.6	days	\$9.00	\$23	\$23	141.8 hours @ 8 hr/day = 17.7 days @ 15% "C" days = 2.6 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)
PPE Usage - Level C	1.8	days	\$25.00	\$45	\$45	141.8 hours @ 8 hr/day = 17.7 days @ 10% "C" days = 1.8 days	10% of non-supv hrs in Level C (used facility price: \$25/day)
Health & Safety Officer	3.5	hours	\$75.00	\$263	\$263	141.8 hours @ 2.5% hr/hr = 3.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$331</b>	<b>\$331</b>		
<b>PCC-9.02.29 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>		
(Subt: Assemb PCC-9.02.28 thru 9.02.29)				<b>\$331</b>	<b>\$331</b>	supervision, health & safety, and certification	

<b>PCC-9.02 (2-Cells): RMU-2 Direct Cost</b>				<b>\$37,683</b>	<b>\$28,802</b>		
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**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area 19.5 acres = 94,380 SY = 849,420 SF = 849.4 MSF 31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs

RMU-2 Parameters - Fencing 0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch 4,700 linear feet 560+585+670+500+600+775+710+300 = 4,700  
 Drainage Tile System 4,405 linear feet 19.5 acres \* 426 LF/acre = 8,307 LF  
 MSE Wall 3,815 linear feet

<b>PCC-9.03.1 Annual Visual Inspections</b>						make visual inspections and log results; two persons required			
<i>Post-Closure</i>									
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew = 6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew = 6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x	2.0 insp/year x	2 per crew/ 8 facility units = 1.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x	1.8 insp/year x	2 per crew = 7.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	12	hours	\$130.00	\$1,560	\$0	12 hrs/insp x	1.0 insp/year x	1 per crew = 12.0 hours	
Subtotal - Annual Inspections				<b>\$2,350</b>	<b>\$0</b>	RMU-2 post-closure inspections			
<i>Perpetual Care</i>									
Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans									
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew = 4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew = 4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x	1.0 insp/year x	2 per crew/ 8 facility units = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x	1.04 insp/year x	2 per crew = 4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	12	hours	\$130.00	\$0	\$1,560	12 hrs/insp x	1.0 insp/year x	1 per crew = 12.0 hours	
Subtotal - Annual Inspections Perp-Care				<b>\$0</b>	<b>\$2,024</b>	RMU-2 perpetual care inspections			
(Subt: Assemb PCC-9.03.1)				<b>\$2,350</b>	<b>\$2,024</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units			

<b>PCC-9.03.2 Perimeter Fence Maint.</b>						one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected		
Subt - Perimeter Fence Maint.				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility fence repair is already provided in the post closure estimate for 8 other units</i>		
(Subt: Assemb PCC-9.03.2)				<b>\$0</b>	<b>\$0</b>			

<b>PCC-9.03.3 Maint. Benchmarks/Surv</b>						Annual inspection only		
Maint of Benchmarks & Surveying	0	acres	\$0.00	\$0	\$0	Included in PCC-9.03.1		
Subt - Benchmarks & Surveying				<b>\$0</b>	<b>\$0</b>			
(Subt: Assemb PCC-9.03.3)				<b>\$0</b>	<b>\$0</b>			

**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.03.4 Groundwater Monitoring</b>							
<i>Monit'g Events &amp; Samples/Event</i>						<i>sampling crew composed of two technicians; 21 monitoring wells</i>	
<i>Post-Closure</i>						<i>0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp</i>	<i>includes 5% QA sampling</i>
Technician	85	hours	\$38.00	\$3,230	\$0	42.5 samps @ 1.0 hrs/samp x 2 per crew = 85 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	\$0	42.5 samps	bottles, shipping supplies
VOCs	42.5	samp	\$105.00	\$4,463	\$0	42.5 samps	Average of three quotes
Subt - GW Monitoring				<b>\$8,755</b>	<b>\$0</b>	<i>post closure groundwater monitoring</i>	
<b>PCC-9.03.5 Outfalls 002,003,004 SPDES Mon</b>							
<i>Monit'g Events &amp; Samples/Event</i>						<i>21 wells @ sample/5 years 1.05 each = 4.4 samp/yr</i>	
<i>Perpetual Care</i>						<i>Perpetual care groundwater monitoring once every five years</i>	
Technician	8.8	hours	\$38.00	\$0	\$334	4.4 samps @ 1.0 hrs/samp x 2 per crew = 8.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	4.4	samp	\$25.00	\$0	\$110	4.4 samples	bottles, shipping supplies
VOCs	4.4	samp	\$105.00	\$0	\$462	4.4 samples	Average of three quotes
Subt - GW Monitoring				<b>\$0</b>	<b>\$906</b>	<i>perpetual care groundwater monitoring</i>	
<b>PCC-9.03.6 Discharge Monitoring Report</b>							
<i>Weekly Sampling Events</i>						<i>production rate = 2 hours per sample for a one-person crew: each year of monitoring during closure</i>	
Subt - SPDES Outfall Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>12 months = 52 weeks @ 3 outfalls @ 1 sample/OF = 156 samples</i>	<i>sampling &amp; analysis according to SPDES Permit</i>
						<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
<b>PCC-9.03.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.0975	acre	\$20,973.33	\$2,045	\$2,045	19.5 acre @ 0.5% per year = 0.0975 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$2,045</b>	<b>\$2,045</b>	<i>RMU-2 upper cap maintenance and replacement</i>	
<b>PCC-9.03.8 Mowing/Grooming</b>							
Mowing	849.4	MSF	\$3.21	\$2,729	\$2,729	849.4 MSF @ 1.0 per year = 849.4 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	169.9	MSF	\$3.82	\$649	\$649	849.4 MSF @ 1.0 per 5.0 years = 169.9 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$3,378</b>	<b>\$3,378</b>	<i>RMU-2 mowing and fertilizing</i>	
(Subt: Assemb PCC-9.03.7 thru 9.03.8)				<b>\$5,423</b>	<b>\$5,423</b>	<i>RMU-2 cap maintenance activities: post-closure &amp; perpetual care frequency are equal</i>	
<b>PCC-9.03.9 MSE Wall Maint.</b>							
MSE Wall Maint.	3815	LF	\$3.03	\$11,559	\$11,559	\$3.03 based on 6,600 LF for 6-cell scenario. 3,815 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$11,559</b>	<b>\$11,559</b>	<i>RMU-2 MSE Wall maintenance</i>	
(Subt: Assemb PCC-9.03.9)				<b>\$11,559</b>	<b>\$11,559</b>		

**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.03.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	73615	gal	\$0.0178	\$1,310	\$0	73,615 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	14617	gal	\$0.0178	\$0	\$260	14,617 perpetual care average years 31-60	Taken from RMU-2 2012 LeachGenMode
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	24	hours	\$39.00	\$936	\$936	2 hrs/mon x 12 mon/year = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	24	hours	\$38.00	\$912	\$912	2 hrs/mon x 12 mon/year = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	6.3	sample	\$105.00	\$662	\$662	3 sumps x 1.05 per sump x 2.0 event/yr = 6.3 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	6.3	sample	\$188.00	\$1,184	\$1,184	3 sumps x 1.05 per sump x 2.0 event/yr = 6.3 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Analysis	6.3	sample	\$133.33	\$840	\$840	3 sumps x 1.05 per sump x 2.0 event/yr = 6.3 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	6.3	sample	\$105.00	\$662	\$662	3 sumps x 1.05 per sump x 2.0 event/yr = 6.3 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	3.2	sample	\$188.00	\$602	\$602	3 sumps x 1.05 per sump = 1.0 event/yr = 3.2 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	3.2	sample	\$633.33	\$2,027	\$2,027	3 sumps x 1.05 per sump = 1.0 event/yr = 3.2 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	0.6	pump	\$1,382.00	\$829	\$829	3 pumps x 20.0% pu/yr = 0.6 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.45	pump	\$850.00	\$383	\$383	3 pumps x 15.0% pu/yr = 0.45 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	1.1	hose	\$211.54	\$233	\$233	1.1 pumps x 1 per pump = 1.1	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	11	CF	\$12.45	\$137	\$137	1.1 pu/hos @ 10 CF/pump = 11 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	2.4	LF	\$53.25	\$128	\$128	480 LF @ 0.5% per year = 2.4 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	0.8	CF	\$12.45	\$10	\$10	2.4 LF @ 0.33 CF/LF = 0.8 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	15.7	LF	\$73.50	\$1,154	\$1,154	3,140 LF @ 0.5% per year = 15.7 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	7.9	CF	\$12.45	\$98	\$98	15.7 LF @ 0.50 LF/drum = 7.9 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	2103	LF	\$2.14	\$4,500	\$4,500	2,103 LF @ 1.0 events/yr = 2,103 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				\$19,524	\$18,474	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.03.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in unit rate
Subt - AWTS Operation				\$0	\$0	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.03.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				\$0	\$0	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.03.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				\$0	\$0	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.03.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Batch Sampling Events						1 events @ 3 samp/evnt= 3 samples	sampling & analysis prior to pond discharge
Subt - Pond Sampling & Analysis				\$0	\$0	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	

**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.03.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one predischarge qualification report	
Subt - S&A Cert'n & Report				\$0	\$0	<i>diver(s) to check discharge pipe; also engineer's predischarge qualification report</i>	
						<i>The Cost for pond qualifications report and diver inspections of outfall is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.03.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
FAC Pond 1/2 Inventory in Gallons		gals	n/a			45.8 total hours req'd to pump	& site waters
Subtotal - Pump FAC Pond 1/2				\$0	\$0	<i>transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is already provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.03.10 thru 9.03.16)				\$19,524	\$18,474	<i>RMU-2 share of annual O&amp;M and capital costs for leachate collection &amp; treatment: provided in post closure cost estimate for 7 other units at facility</i>	

<b>PCC-9.03.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.03.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.03.19 N/A</b>							
Subt - N/A				\$0	\$0		
(Subt: Assemb PCC-9.03.17 thru 9.03.19)				\$0	\$0	<i>RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS</i>	

<b>PCC-9.03.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
Internal & External Inspections						<i>16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 16 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.03.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
External Only Inspections						<i>30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 32 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.03.20 thru 9.03.21)				\$0	\$0	<i>RMU-2 share of annual tank assessment costs: post-closure &amp; perpetual care frequency are equal</i>	

<b>PCC-9.03.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.53	pump	\$900.00	\$477	\$477	21 pumps @ 2.5% per year = 0.53 pumps/yr	Site experience third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.53	CF	\$12.45	\$7	\$7	0.53 pumps @ 1.0 CF/pump = 0.53 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.53	pad	\$131.50	\$70	\$70	21 pads @ 2.5% per year = 0.53 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	1.1	CF	\$12.45	\$14	\$14	0.53 pads @ 2.0 CF/pad = 1.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.53	each	\$371.63	\$197	\$197	21 covers @ 2.5% per year = 0.53 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.27	CF	\$12.45	\$3	\$3	0.53 covers @ 0.5 CF/cover = 0.27 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$843	\$843	<i>monitoring well pump maintenance and replacement</i>	
(Subt: Assemb PCC-9.03.22)				\$843	\$843	<i>RMU-2 mon well pump maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.03.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
<i>RMU-2 Drainage Ditches</i>						Perimeter Ditch + Drainage Tile System = 4,700 + 8,307 = 13,007 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
<i>RMU-2 Downchutes</i>						685 LF 26" pipe 266 LF 6" pipe	
Drainage Ditch Repair	0.03	acre	\$5,698.00	\$171	\$171	13,007 LF x 10 ft/LF = 3.0 acres @ 1.0% per year = 0.03 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	34.25	LF	\$2.14	\$73	\$73	685 LF x 5.0% per year = 34.25 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	13.3	LF	\$2.14	\$28	\$28	266 LF x 5.0% per year = 13.3 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$273</b>	<b>\$273</b>	<i>stormwater drainage ditch repair</i>	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.03.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
<i>RMU-2 Drainage Ditches</i>						13,007 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
Drainage Ditch Sediment Cleaning	16.1	CY	\$2.38	\$38	\$38	13,007 LF x 10.0 ft/LF x 0.333 feet (4")/27 = 1,606 CY @ 1%/yr = 16.1 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	5.4	miles	\$3.25	\$18	\$18	21.7 tons @ 20 tons/load = 1.1 loads @ 5 miles per load = 5.4 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	21.7	ton	\$35.00	\$760	\$760	16.1 CY @ 1.35 ton/CY = 21.7 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$815</b>	<b>\$815</b>	<i>stormwater drainage ditch cleaning</i>	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.03.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
<i>Basin No. 1</i>						140625 SF div by 8 units = 17578 SF	
<i>Basin No. 2</i>						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	<i>facility stormwater basin cleaning</i>	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.03.26 Culvert Maint/Replace</b>						average culvert = 40 feet in length and 18 inches in diameter; replace one 40-foot sections/year	
<i>RMU-2 Culverts</i>						3 culverts x 40 feet long = 120 LF	culverts specific to RMU-2 unit
<i>Facility-wide Culverts</i>						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	culverts in non-specific areas of facility
Culvert Cleaning - 18" diameter avg	120	LF	\$2.14	\$257	\$257	120 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	40	LF	\$11.61	\$464	\$464	120 LF @ 1 culvert/yr = 40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)	0	LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	30	CY	\$2.96	\$89	\$89	40.0 LF x 0.75 CY/LF = 30 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	30	CY	\$3.86	\$116	\$116	30 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$926</b>	<b>\$926</b>	<i>culvert maintenance and replacement</i>	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.03.23 thru 9.03.26)				<b>\$2,014</b>	<b>\$2,014</b>	RMU-2 storm drainage maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.03: RMU-2 (3-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.03.27 Road Maint/Replace</b>						gravel roads = 15 feet wide; asphalt roads = 20 feet wide	
RMU-2 Gravel Roads						4700 LF x 15 feet wide/ 9 SF/SY = 7833 SY @ 2% per year = 157 SY	
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility
RMU-2 Gravel Road Repair	157	SY	\$3.12	\$490	\$490	157 SY	DEC 2004 rate * deflator (2004-2010)
Facility-wide Asphalt Roads	0	SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Subt - Road Maint/Replacement				<b>\$490</b>	<b>\$490</b>	road maintenance and replacement	
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.03.27)				<b>\$490</b>	<b>\$490</b>	RMU-2 road maintenance & replacement	

Total Non-Super hours 167.8

<b>PCC-9.03.28 PPE Use/H&amp;S Planning</b>						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	13.4	days	\$0.00	\$0	\$0	167.8 hours @ 8 hr/day = 21.0 days @ 75% "D" days = 15.8 days	75% of non-supv hrs in Level D (used facility price: \$0/day)
PPE Usage - Mod Level C	3.1	days	\$9.00	\$28	\$28	167.8 hours @ 8 hr/day = 21.0 days @ 15% "C" days = 3.1 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)
PPE Usage - Level C	2	days	\$25.00	\$50	\$50	167.8 hours @ 8 hr/day = 21.0 days @ 10% "C" days = 2.1 days	10% of non-supv hrs in Level C (used facility price: \$25/day)
Health & Safety Officer	4.2	hours	\$75.00	\$315	\$315	167.8 hours @ 2.5% hr/hr = 4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$393</b>	<b>\$393</b>		
<b>PCC-9.03.29 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>		
(Subt: Assemb PCC-9.03.28 thru 9.03.29)				<b>\$393</b>	<b>\$393</b>	supervision, health & safety, and certification	

<b>PCC 9.03 (1-Cell): RMU-2 Direct Cost</b>				<b>\$51,352</b>	<b>\$42,126</b>		
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**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area 25.4 acres = 122,936 SY = 1,106,424 SF = 1,106.4 MSF 31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs

RMU-2 Parameters - Fencing 0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch 4,825 linear feet 1270+1200+600+500+670+585 = 4,825  
 Drainage Tile System 5,847 linear feet 25.4 acres \* 426 LF/acre = 10,820 LF  
 MSE Wall 4,200 linear feet

<b>PCC-9.04.1 Annual Visual Inspections</b>						make visual inspections and log results; two persons required			
<i>Post-Closure</i>									
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew = 6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew = 6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x	2.0 insp/year x	2 per crew/ 8 facility units = 1.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x	1.8 insp/year x	2 per crew = 7.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	14	hours	\$130.00	\$1,820	\$0	14 hrs/insp x	1.0 insp/year x	1 per crew = 14.0 hours	
Subtotal - Annual Inspections				<b>\$2,610</b>	<b>\$0</b>	RMU-2 post-closure inspections			
<i>Perpetual Care</i>									
Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans									
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew = 4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew = 4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x	1.0 insp/year x	2 per crew/ 8 facility units = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x	1.04 insp/year x	2 per crew = 4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above			this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	14	hours	\$130.00	\$0	\$1,820	14 hrs/insp x	1.0 insp/year x	1 per crew = 14.0 hours	
Subtotal - Annual Inspections Perp-Care				<b>\$0</b>	<b>\$2,284</b>	RMU-2 perpetual care inspections			
(Subt: Assemb PCC-9.04.1)				<b>\$2,610</b>	<b>\$2,284</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units			

<b>PCC-9.04.2 Perimeter Fence Maint.</b>						one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected		
Subt - Perimeter Fence Maint.				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility fence repair is already provided in the post closure estimate for 8 other units</i>		
(Subt: Assemb PCC-9.04.2)				<b>\$0</b>	<b>\$0</b>			

<b>PCC-9.04.3 Maint. Benchmarks/Surv</b>						Annual inspection only		
Maint of Benchmarks & Surveying	0	acres	\$0.00	\$0	\$0	Included in PCC-9.04.1		
Subt - Benchmarks & Surveying				<b>\$0</b>	<b>\$0</b>			
(Subt: Assemb PCC-9.04.3)				<b>\$0</b>	<b>\$0</b>			

**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.04.4 Groundwater Monitoring</b>						<i>sampling crew composed of two technicians; 21 monitoring wells</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp</i>	<i>includes 5% QA sampling</i>
<i>Post-Closure</i>							
Technician	85	hours	\$38.00	\$3,230	\$0	42.5 samps @ 1.0 hrs/samp x 2 per crew = 85 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	\$0	42.5 samps	bottles, shipping supplies
VOCs	42.5	samp	\$105.00	\$4,463	\$0	42.5 samps	Average of three quotes
Subt - GW Monitoring				<b>\$8,755</b>	<b>\$0</b>	<i>post closure groundwater monitoring</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>21 wells @ sample/5 years 1.05 each = 4.4 samp/yr</i>	
<i>Perpetual Care</i>						<i>Perpetual care groundwater monitoring once every five years</i>	
Technician	8.8	hours	\$38.00	\$0	\$334	4.4 samps @ 1.0 hrs/samp x 2 per crew = 8.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	4.4	samp	\$25.00	\$0	\$110	4.4 samples	bottles, shipping supplies
VOCs	4.4	samp	\$105.00	\$0	\$462	4.4 samples	Average of three quotes
Subt - GW Monitoring				<b>\$0</b>	<b>\$906</b>	<i>perpetual care groundwater monitoring</i>	
<b>PCC-9.04.5 Outfalls 002,003,004 SPDES Mon</b>						<i>production rate = 2 hours per sample for a one-person crew: each year of monitoring during closure</i>	
<i>Weekly Sampling Events</i>						<i>12 months = 52 weeks @ 3 outfalls @ 1 sample/OF = 156 samples</i>	<i>sampling &amp; analysis according to SPDES Permit</i>
Subt - SPDES Outfall Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
<b>PCC-9.04.6 Discharge Monitoring Report</b>						<i>Monthly Discharge Monitoring Reports</i>	
Subt - Discharge Monitoring Report				<b>\$0</b>	<b>\$0</b>	<i>submittal of SPDES Permit required Discharge Monitoring Report (DMR)</i>	
						<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
(Subt: Assemb PCC-9.04.4 thru 9.04.6)				<b>\$8,755</b>	<b>\$906</b>	<i>RMU-2 groundwater &amp; stormwater monitoring activities</i>	

<b>PCC-9.04.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.127	acre	\$20,973.33	\$2,664	\$2,664	25.4 acre @ 0.5% per year = 0.127 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$2,664</b>	<b>\$2,664</b>	<i>RMU-2 upper cap maintenance and replacement</i>	
<b>PCC-9.04.8 Mowing/Grooming</b>							
Mowing	1106.4	MSF	\$3.21	\$3,555	\$3,555	1,106.4 MSF @ 1.0 per year = 1,106.4 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	221.3	MSF	\$3.82	\$845	\$845	1,106.4 MSF @ 1.0 per 5.0 years = 221.3 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$4,400</b>	<b>\$4,400</b>	<i>RMU-2 mowing and fertilizing</i>	
(Subt: Assemb PCC-9.04.7 thru 9.04.8)				<b>\$7,064</b>	<b>\$7,064</b>	<i>RMU-2 cap maintenance activities: post-closure &amp; perpetual care frequency are equal</i>	

<b>PCC-9.04.9 MSE Wall Maint.</b>						<i>\$3.03 based on 6,600 LF for 6-cell scenario.</i>	
MSE Wall Maint.	4200	LF	\$3.03	\$12,726	\$12,726	4,200 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$12,726</b>	<b>\$12,726</b>	<i>RMU-2 MSE Wall maintenance</i>	
(Subt: Assemb PCC-9.04.9)				<b>\$12,726</b>	<b>\$12,726</b>		

**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.04.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	95889	gal	\$0.0178	\$1,707	\$0	95,889 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	19039	gal	\$0.0178	\$0	\$339	19,039 perpetual care average years 31-60	Taken from RMU-2 2012 LeachGenMode
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at the f	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	24	hours	\$39.00	\$936	\$936	2 hrs/mon x 12 mon/year = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	24	hours	\$38.00	\$912	\$912	2 hrs/mon x 12 mon/year = 24 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	8.4	sample	\$105.00	\$882	\$882	4 sumps x 1.05 per sump x 2.0 event/yr = 8.4 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	8.4	sample	\$188.00	\$1,579	\$1,579	4 sumps x 1.05 per sump x 2.0 event/yr = 8.4 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Analysis	8.4	sample	\$133.33	\$1,120	\$1,120	4 sumps x 1.05 per sump x 2.0 event/yr = 8.4 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	8.4	sample	\$105.00	\$882	\$882	4 sumps x 1.05 per sump x 2.0 event/yr = 8.4 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	4.2	sample	\$188.00	\$790	\$790	4 sumps x 1.05 per sump = 1.0 event/yr = 4.2 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	4.2	sample	\$633.33	\$2,660	\$2,660	4 sumps x 1.05 per sump = 1.0 event/yr = 4.2 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	0.8	pump	\$1,382.00	\$1,106	\$1,106	4 pumps x 20.0% pu/yr = 0.8 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.6	pump	\$850.00	\$510	\$510	4 pumps x 15.0% pu/yr = 0.6 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	1.4	hose	\$211.54	\$296	\$296	1.4 pumps x 1 per pump = 1.4	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	14	CF	\$12.45	\$174	\$174	1.4 pu/hos @ 10 CF/pump = 14 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	3.2	LF	\$53.25	\$170	\$170	640 LF @ 0.5% per year = 3.2 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	1.1	CF	\$12.45	\$14	\$14	3.2 LF @ 0.33 CF/LF = 1.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	21	LF	\$73.50	\$1,544	\$1,544	4187 LF @ 0.5% per year = 21 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	10.5	CF	\$12.45	\$131	\$131	21 LF @ 0.50 LF/drum = 10.5 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	2804	LF	\$2.14	\$6,001	\$6,001	2,804 LF @ 1.0 events/yr = 2,804 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				\$24,331	\$22,963	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.04.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in unit r
Subt - AWTS Operation				\$0	\$0	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.04.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				\$0	\$0	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.04.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				\$0	\$0	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.04.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Batch Sampling Events						1 events @ 3 samp/evnt= 3 samples	sampling & analysis prior to pond discharge
Subt - Pond Sampling & Analysis				\$0	\$0	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	

**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.04.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one predischage qualification report	
Subt - S&A Cert'n & Report				\$0	\$0	diver(s) to check discharge pipe; also engineer's predischage qualification report	
						The Cost for pond qualifications report and diver inspections of outfall is already provided in the post closure estimate for 7 other units	
<b>PCC-9.04.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
FAC Pond 1/2 Inventory in Gallons		gals	n/a			45.8 total hours req'd to pump	& site waters
						transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is	
Subtotal - Pump FAC Pond 1/2				\$0	\$0	already provided in the post closure estimate for 7 other units	
(Subt: Assemb PCC-9.04.10 thru 9.04.16)				\$24,331	\$22,963	RMU-2 share of annual O&M and capital costs for leachate collection & treatment: provided in post closure cost estimate for 7 other units at facility	

<b>PCC-9.04.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.04.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.04.19 N/A</b>							
Subt - N/A				\$0	\$0		
(Subt: Assemb PCC-9.04.17 thru 9.04.19)				\$0	\$0	RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS	

<b>PCC-9.04.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
Internal & External Inspections						16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr	
Subt - Tank Assessments				\$0	\$0	inspection of 16 tanks	
						The Cost for tank assessment is already provided in the post closure estimate for 7 other units	
<b>PCC-9.04.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
External Only Inspections						30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr	
Subt - Tank Assessments				\$0	\$0	inspection of 32 tanks	
						The Cost for tank assessment is already provided in the post closure estimate for 7 other units	
(Subt: Assemb PCC-9.04.20 thru 9.04.21)				\$0	\$0	RMU-2 share of annual tank assessment costs: post-closure & perpetual care frequency are equal	

<b>PCC-9.04.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.53	pump	\$900.00	\$477	\$477	21 pumps @ 2.5% per year = 0.53 pumps/yr	Site experiance third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.53	CF	\$12.45	\$7	\$7	0.53 pumps @ 1.0 CF/pump = 0.53 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.53	pad	\$131.50	\$70	\$70	21 pads @ 2.5% per year = 0.53 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	1.1	CF	\$12.45	\$14	\$14	0.53 pads @ 2.0 CF/pad = 1.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.53	each	\$371.63	\$197	\$197	21 covers @ 2.5% per year = 0.53 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.27	CF	\$12.45	\$3	\$3	0.53 covers @ 0.5 CF/cover = 0.27 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$843	\$843	monitoring well pump maintenance and replacement	
(Subt: Assemb PCC-9.04.22)				\$843	\$843	RMU-2 mon well pump maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.04.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
<i>RMU-2 Drainage Ditches</i>						Perimeter Ditch + Drainage Tile System = 4,825 + 10,820 = 15,645 LF	<i>drainage ditches specific to RMU-2 unit</i>
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	<i>drainage ditches in non-specific areas of facility</i>
<i>RMU-2 Downchutes</i>						685 LF 26" pipe 266 LF 6" pipe	
Drainage Ditch Repair	0.025	acre	\$5,698.00	\$142	\$142	15,645 LF x 10 ft/LF = 2.45 acres @ 1.0% per year = 0.025 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	34.25	LF	\$2.14	\$73	\$73	685 LF x 5.0% per year = 34.25 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	13.3	LF	\$2.14	\$28	\$28	266 LF x 5.0% per year = 13.3 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$244</b>	<b>\$244</b>	<i>stormwater drainage ditch repair</i>	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.04.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
<i>RMU-2 Drainage Ditches</i>						10,672 LF	<i>drainage ditches specific to RMU-2 unit</i>
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	<i>drainage ditches in non-specific areas of facility</i>
Drainage Ditch Sediment Cleaning	19.3	CY	\$2.38	\$46	\$46	15,645 LF x 10.0 ft/LF x 0.333 feet (4")/27 = 1,931 CY @ 1%/yr = 19.3 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	6.5	miles	\$3.25	\$21	\$21	26.1 tons @ 20 tons/load = 1.3 loads @ 5 miles per load = 6.5 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	26.1	ton	\$35.00	\$914	\$914	19.3 CY @ 1.35 ton/CY = 26.1 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$981</b>	<b>\$981</b>	<i>stormwater drainage ditch cleaning</i>	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.04.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
<i>Basin No. 1</i>						140625 SF div by 8 units = 17578 SF	
<i>Basin No. 2</i>						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	<i>facility stormwater basin cleaning</i>	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.04.26 Culvert Maint/Replace</b>						average culvert = 40 feet in length and 18 inches in diameter; replace one 40-foot sections/year	
<i>RMU-2 Culverts</i>						4 culverts x 40 feet long = 160 LF	<i>culverts specific to RMU-2 unit</i>
<i>Facility-wide Culverts</i>						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	<i>culverts in non-specific areas of facility</i>
Culvert Cleaning - 18" diameter avg	160	LF	\$2.14	\$342	\$342	160 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	40	LF	\$11.61	\$464	\$464	160 LF @ 1 culvert/yr = 40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)	0	LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	30	CY	\$2.96	\$89	\$89	40.0 LF x 0.75 CY/LF = 30 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	30	CY	\$3.86	\$116	\$116	30 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$1,011</b>	<b>\$1,011</b>	<i>culvert maintenance and replacement</i>	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.04.23 thru 9.04.26)				<b>\$2,236</b>	<b>\$2,236</b>	<i>RMU-2 storm drainage maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.04: RMU-2 (4-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.04.27 Road Maint/Replace</b>						gravel roads = 15 feet wide; asphalt roads = 20 feet wide	
RMU-2 Gravel Roads						48425 LF x 15 feet wide/ 9 SF/SY = 8042 SY @ 2% per year = 160.8 SY	
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility
RMU-2 Gravel Road Repair	160.8	SY	\$3.12	\$502	\$502	160.8 SY	DEC 2004 rate * deflator (2004-2010)
Facility-wide Asphalt Roads	0	SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Subt - Road Maint/Replacement				<b>\$502</b>	<b>\$502</b>	road maintenance and replacement	
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.04.27)				<b>\$502</b>	<b>\$502</b>	RMU-2 road maintenance & replacement	

Total Non-Super hours 169.8

<b>PCC-9.04.28 PPE Use/H&amp;S Planning</b>						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	15.4	days	\$0.00	\$0	\$0	169.8 hours @ 8 hr/day = 21.2 days @ 75% "D" days = 15.9 days	75% of non-supv hrs in Level D (used facility price: \$0/day)
PPE Usage - Mod Level C	3.1	days	\$9.00	\$28	\$28	169.8 hours @ 8 hr/day = 21.2 days @ 15% "C" days = 3.2 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)
PPE Usage - Level C	2	days	\$25.00	\$50	\$50	169.8 hours @ 8 hr/day = 21.2 days @ 10% "C" days = 2.1 days	10% of non-supv hrs in Level C (used facility price: \$25/day)
Health & Safety Officer	4.2	hours	\$75.00	\$315	\$315	169.8 hours @ 2.5% hr/hr = 4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$393</b>	<b>\$393</b>		
<b>PCC-9.04.29 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>		
(Subt: Assemb PCC-9.04.28 thru 9.04.29)				<b>\$393</b>	<b>\$393</b>	supervision, health & safety, and certification	

<b>PCC 9.04 (4-Cells): RMU-2 Direct Cost</b>				<b>\$59,460</b>	<b>\$49,917</b>		
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**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area 31.9 acres = 154,396 SY = 1,389,546 SF = 1,389.5 MSF 31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs

RMU-2 Parameters - Fencing 0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch 6,035 linear feet 1200+600+500+670+585+560+560+500+600+260 = 6,035  
 Drainage Tile System 7,728 linear feet 31.9 acres \* 426 LF/acre = 13,589 LF  
 MSE Wall 5,230 linear feet

<b>PCC-9.05.1 Annual Visual Inspections</b>						make visual inspections and log results; two persons required				
<i>Post-Closure</i>										
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x	1.7 insp/year x	2 per crew =	6.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x	2.0 insp/year x	2 per crew/	8 facility units = 1.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x	1.8 insp/year x	2 per crew =	7.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above				this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	16	hours	\$130.00	\$2,080	\$0	16 hrs/insp x	1.0 insp/year x	1 per crew =	16.0 hours	
Subtotal - Annual Inspections				<b>\$2,870</b>	<b>\$0</b>	RMU-2 post-closure inspections				
<i>Perpetual Care</i>						Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans				
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x	1.0 insp/year x	2 per crew =	4.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x	1.0 insp/year x	2 per crew/	8 facility units = 1.0 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x	1.04 insp/year x	2 per crew =	4.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above				this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	16	hours	\$130.00	\$0	\$2,080	16 hrs/insp x	1.0 insp/year x	1 per crew =	16.0 hours	
Subtotal - Annual Inspections Perp-Care				<b>\$0</b>	<b>\$2,544</b>	RMU-2 perpetual care inspections				
(Subt: Assemb PCC-9.05.1)				<b>\$2,870</b>	<b>\$2,544</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units				

<b>PCC-9.05.2 Perimeter Fence Maint.</b>						one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected				
Subt - Perimeter Fence Maint.				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility fence repair is already provided in the post closure estimate for 8 other units</i>				
(Subt: Assemb PCC-9.05.2)				<b>\$0</b>	<b>\$0</b>					

<b>PCC-9.05.3 Maint. Benchmarks/Surv</b>						Annual inspection only				
Maint of Benchmarks & Surveying	0	acres	\$0.00	\$0	\$0	Included in PCC-9.05.1				
Subt - Benchmarks & Surveying				<b>\$0</b>	<b>\$0</b>					
(Subt: Assemb PCC-9.05.3)				<b>\$0</b>	<b>\$0</b>					

**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.05.4 Groundwater Monitoring</b>						<i>sampling crew composed of two technicians; 21 monitoring wells</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>0.0 quart'ly + 40 semi-ann + 1.0 b-ann'l x 1.05 each = 42.5 samp</i>	<i>includes 5% QA sampling</i>
<i>Post-Closure</i>							
Technician	85	hours	\$38.00	\$3,230	\$0	42.5 samps @ 1.0 hrs/samp x 2 per crew = 85 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	42.5	samp	\$25.00	\$1,063	\$0	42.5 samps	bottles, shipping supplies
VOCs	42.5	samp	\$105.00	\$4,463	\$0	42.5 samps	Average of three quotes
Subt - GW Monitoring				<b>\$8,755</b>	<b>\$0</b>	<i>post closure groundwater monitoring</i>	
<i>Monit'g Events &amp; Samples/Event</i>						<i>21 wells @ sample/5 years 1.05 each = 4.4 samp/yr</i>	
<i>Perpetual Care</i>						<i>Perpetual care groundwater monitoring once every five years</i>	
Technician	8.8	hours	\$38.00	\$0	\$334	4.4 samps @ 1.0 hrs/samp x 2 per crew = 8.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	4.4	samp	\$25.00	\$0	\$110	4.4 samples	bottles, shipping supplies
VOCs	4.4	samp	\$105.00	\$0	\$462	4.4 samples	Average of three quotes
Subt - GW Monitoring				<b>\$0</b>	<b>\$906</b>	<i>perpetual care groundwater monitoring</i>	
<b>PCC-9.05.5 Outfalls 002,003,004 SPDES Mon</b>						<i>production rate = 2 hours per sample for a one-person crew: each year of monitoring during closure</i>	
<i>Weekly Sampling Events</i>						<i>12 months = 52 weeks @ 3 outfalls @ 1 sample/OF = 156 samples</i>	<i>sampling &amp; analysis according to SPDES Permit</i>
Subt - SPDES Outfall Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
<b>PCC-9.05.6 Discharge Monitoring Report</b>						<i>Monthly Discharge Monitoring Reports</i>	
Subt - Discharge Monitoring Report				<b>\$0</b>	<b>\$0</b>	<i>submittal of SPDES Permit required Discharge Monitoring Report (DMR)</i>	
						<i>The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units</i>	
(Subt: Assemb PCC-9.05.4 thru 9.05.6)				<b>\$8,755</b>	<b>\$906</b>	<i>RMU-2 groundwater &amp; stormwater monitoring activities</i>	
<b>PCC-9.05.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.1595	acre	\$20,973.33	\$3,345	\$3,345	31.9 acre @ 0.5% per year = 0.1595 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$3,345</b>	<b>\$3,345</b>	<i>RMU-2 upper cap maintenance and replacement</i>	
<b>PCC-9.05.8 Mowing/Grooming</b>							
Mowing	1389.5	MSF	\$3.21	\$4,465	\$4,465	1389.5 MSF @ 1.0 per year = 1389.5 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	277.9	MSF	\$3.82	\$1,061	\$1,061	1389.5 MSF @ 1.0 per 5.0 years = 277.9 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$5,526</b>	<b>\$5,526</b>	<i>RMU-2 mowing and fertilizing</i>	
(Subt: Assemb PCC-9.05.7 thru 9.05.8)				<b>\$8,871</b>	<b>\$8,871</b>	<i>RMU-2 cap maintenance activities: post-closure &amp; perpetual care frequency are equal</i>	
<b>PCC-9.05.9 MSE Wall Maint.</b>						<i>\$3.03 based on 6,600 LF for 6-cell scenario.</i>	
MSE Wall Maint.	5230	LF	\$3.03	\$15,847	\$15,847	4,200 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$15,847</b>	<b>\$15,847</b>	<i>RMU-2 MSE Wall maintenance</i>	
(Subt: Assemb PCC-9.05.9)				<b>\$15,847</b>	<b>\$15,847</b>		

**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.05.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	120427	gal	\$0.0178	\$2,144	\$0	120,427 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	23911	gal	\$0.0178	\$0	\$426	23,911 perpetual care average years 31-60	Taken from RMU-2 2012 LeachGenMode
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at the fac)	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	48	hours	\$39.00	\$1,872	\$1,872	4 hrs/mon x 12 mon/year = 48 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	48	hours	\$38.00	\$1,824	\$1,824	4 hrs/mon x 12 mon/year = 48 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	10.5	sample	\$105.00	\$1,103	\$1,103	5 sumps x 1.05 per sump x 2.0 event/yr = 10.5 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	10.5	sample	\$188.00	\$1,974	\$1,974	5 sumps x 1.05 per sump x 2.0 event/yr = 10.5 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Analysis	10.5	sample	\$133.33	\$1,400	\$1,400	5 sumps x 1.05 per sump x 2.0 event/yr = 10.5 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	10.5	sample	\$105.00	\$1,103	\$1,103	5 sumps x 1.05 per sump x 2.0 event/yr = 10.5 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	5.3	sample	\$188.00	\$996	\$996	5 sumps x 1.05 per sump = 1.0 event/yr = 5.3 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	5.3	sample	\$633.33	\$3,357	\$3,357	5 sumps x 1.05 per sump = 1.0 event/yr = 5.3 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	1	pump	\$1,382.00	\$1,382	\$1,382	5 pumps x 20.0% pu/yr = 1 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.75	pump	\$850.00	\$638	\$638	5 pumps x 15.0% pu/yr = 0.75 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	1.75	hose	\$211.54	\$370	\$370	1.75 pumps x 1 per pump = 1.75	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	17.5	CF	\$12.45	\$218	\$218	1.75 pu/hos @ 10 CF/pump = 17.5 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	4	LF	\$53.25	\$213	\$213	800 LF @ 0.5% per year = 4 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	1.34	CF	\$12.45	\$17	\$17	4 LF @ 0.33 CF/LF = 1.34 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	26.2	LF	\$73.50	\$1,926	\$1,926	5,234 LF @ 0.5% per year = 26.2 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	13.1	CF	\$12.45	\$163	\$163	26.2 LF @ 0.50 LF/drum = 13.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	3504.2	LF	\$2.14	\$7,499	\$7,499	3,504.2 LF @ 1.0 events/yr = 3,504.2 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				\$31,115	\$29,397	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.05.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in un
Subt - AWTS Operation				\$0	\$0	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.05.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				\$0	\$0	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.05.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				\$0	\$0	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.05.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Subt - Pond Sampling & Analysis				\$0	\$0	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	

**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.05.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one pre-discharge qualification report	
Subt - S&A Cert'n & Report				\$0	\$0	<i>diver(s) to check discharge pipe; also engineer's pre-discharge qualification report</i>	Fac Pond 8 out of service empty
						<i>The Cost for pond qualifications report and diver inspections of outfall is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.05.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
<i>FAC Pond 1/2 Inventory in Gallons</i>		<i>gals</i>	<i>n/a</i>			<i>45.8 total hours req'd to pump</i>	& site waters
						<i>transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is already</i>	
Subtotal - Pump FAC Pond 1/2				\$0	\$0	<i>provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.05.10 thru 9.05.16)				\$31,115	\$29,397	<i>RMU-2 share of annual O&amp;M and capital costs for leachate collection &amp; treatment: provided in post closure cost estimate for 7 other units at facility</i>	
<b>PCC-9.05.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.05.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.05.19 N/A</b>							
Subt - N/A				\$0	\$0		
(Subt: Assemb PCC-9.05.17 thru 9.05.19)				\$0	\$0	<i>RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS</i>	
<b>PCC-9.05.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
<i>Internal &amp; External Inspections</i>						<i>16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 16 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.05.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
<i>External Only Inspections</i>						<i>30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 32 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
(Subt: Assemb PCC-9.05.20 thru 9.05.21)				\$0	\$0	<i>RMU-2 share of annual tank assessment costs: post-closure &amp; perpetual care frequency are equal</i>	
<b>PCC-9.05.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.53	pump	\$900.00	\$477	\$477	21 pumps @ 2.5% per year = 0.53 pumps/yr	Site experience third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.53	CF	\$12.45	\$7	\$7	0.53 pumps @ 1.0 CF/pump = 0.53 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.53	pad	\$131.50	\$70	\$70	21 pads @ 2.5% per year = 0.53 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	1.1	CF	\$12.45	\$14	\$14	0.53 pads @ 2.0 CF/pad = 1.1 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.53	each	\$371.63	\$197	\$197	21 covers @ 2.5% per year = 0.53 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.27	CF	\$12.45	\$3	\$3	0.53 covers @ 0.5 CF/cover = 0.27 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$843	\$843	<i>monitoring well pump maintenance and replacement</i>	
(Subt: Assemb PCC-9.05.22)				\$843	\$843	<i>RMU-2 mon well pump maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.05.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
<i>RMU-2 Drainage Ditches</i>						Perimeter Ditch + Drainage Tile System = 6,035 + 13,589 = 19,624 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
<i>RMU-2 Downchutes</i>						685 LF 26" pipe 266 LF 6" pipe	
Drainage Ditch Repair	0.045	acre	\$5,698.00	\$256	\$256	19,624 LF x 10 ft/LF = 4.5 acres @ 1.0% per year = 0.045 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	34.25	LF	\$2.14	\$73	\$73	685 LF x 5.0% per year = 34.25 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	13.3	LF	\$2.14	\$28	\$28	266 LF x 5.0% per year = 13.3 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$358</b>	<b>\$358</b>	<i>stormwater drainage ditch repair</i>	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.05.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
<i>RMU-2 Drainage Ditches</i>						13,763 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
Drainage Ditch Sediment Cleaning	24.2	CY	\$2.38	\$58	\$58	19,624 LF x 10.0 ft/LF x 0.333 feet (4")/27 = 2,422 CY @ 1%/yr = 24.2 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	8.2	miles	\$3.25	\$27	\$27	32.7 tons @ 20 tons/load = 1.63 loads @ 5 miles per load = 8.2 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	32.7	ton	\$35.00	\$1,145	\$1,145	24.2 CY @ 1.35 ton/CY = 32.7 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$1,229</b>	<b>\$1,229</b>	<i>stormwater drainage ditch cleaning</i>	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.05.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
<i>Basin No. 1</i>						140625 SF div by 8 units = 17578 SF	
<i>Basin No. 2</i>						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	<i>facility stormwater basin cleaning</i>	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.05.26 Culvert Maint/Replace</b>						average culvert = 40 feet in length and 18 inches in diameter; replace one 40-foot sections/year	
<i>RMU-2 Culverts</i>						5 culverts x 40 feet long = 200 LF	culverts specific to RMU-2 unit
<i>Facility-wide Culverts</i>						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	culverts in non-specific areas of facility
Culvert Cleaning - 18" diameter avg	200	LF	\$2.14	\$428	\$428	200 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	40	LF	\$11.61	\$464	\$464	200 LF @ 1 culvert/yr = 40 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)	0	LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	30	CY	\$2.96	\$89	\$89	40.0 LF x 0.75 CY/LF = 30 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	30	CY	\$3.86	\$116	\$116	30 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$1,097</b>	<b>\$1,097</b>	<i>culvert maintenance and replacement</i>	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.05.23 thru 9.05.26)				<b>\$2,684</b>	<b>\$2,684</b>	RMU-2 storm drainage maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.05: RMU-2 (5-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.05.27 Road Maint/Replace</b>						gravel roads = 15 feet wide; asphalt roads = 20 feet wide	
RMU-2 Gravel Roads						6035 LF x 15 feet wide/ 9 SF/SY = 10058 SY @ 2% per year = 201.2 SY	
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility
RMU-2 Gravel Road Repair	201.2	SY	\$3.12	\$628	\$628	201.2 SY	DEC 2004 rate * deflator (2004-2010)
Facility-wide Asphalt Roads	0	SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Subt - Road Maint/Replacement				<b>\$628</b>	<b>\$628</b>	road maintenance and replacement	
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.	
(Subt: Assemb PCC-9.05.27)				<b>\$628</b>	<b>\$628</b>	RMU-2 road maintenance & replacement	

Total Non-Super hours 219.8

<b>PCC-9.05.28 PPE Use/H&amp;S Planning</b>						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs	
PPE Usage - Level D	20.6	days	\$0.00	\$0	\$0	219.8 hours @ 8 hr/day = 27.5 days @ 75% "D" days = 20.6 days	75% of non-supv hrs in Level D (used facility price: \$0/day)
PPE Usage - Mod Level C	4.1	days	\$9.00	\$37	\$37	219.8 hours @ 8 hr/day = 27.5 days @ 15% "C" days = 4.1 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)
PPE Usage - Level C	2.8	days	\$25.00	\$70	\$70	219.8 hours @ 8 hr/day = 27.5 days @ 10% "C" days = 2.8 days	10% of non-supv hrs in Level C (used facility price: \$25/day)
Health & Safety Officer	5.5	hours	\$75.00	\$413	\$413	219.8 hours @ 2.5% hr/hr = 5.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Subt - PPE Usage/H&S Planning				<b>\$519</b>	<b>\$519</b>		
<b>PCC-9.05.29 Supervision</b>							
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>		
(Subt: Assemb PCC-9.05.28 thru 9.05.29)				<b>\$519</b>	<b>\$519</b>	supervision, health & safety, and certification	

<b>PCC 9.05 (5-Cells): RMU-2 Direct Cost</b>				<b>\$72,133</b>	<b>\$62,239</b>		
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**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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RMU-2 Parameters - Area 38.5 acres = 186,340 SY = 1,677,060 SF = 1677 MSF 31680 LF (6 Mi.) = total est'd perimeter fencing for eight (8) SLFs

RMU-2 Parameters - Fencing 0 LF = portion of perimeter fencing for RMU-2

Perimeter Ditch 6,500 linear feet  
 Drainage Tile System 16,400 linear feet 16,400/38.5 = 426 LF/acre  
 MSE Wall 6,600 linear feet

<b>PCC-9.06.1 Annual Visual Inspections</b>				make visual inspections and log results; two persons required			
<i>Post-Closure</i>							
Technician - Landfill	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x 1.7 insp/year x 2 per crew =	6.8 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	6.8	hours	\$38.00	\$258	\$0	2 hrs/insp x 1.7 insp/year x 2 per crew =	6.8 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0	hours	\$38.00	\$0	\$0	3 hrs/insp x 2.0 insp/year x 2 per crew/ 8 facility units =	1.5 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	7.2	hours	\$38.00	\$274	\$0	2 hrs/insp x 1.8 insp/year x 2 per crew =	7.2 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0	hours	\$38.00	\$0	\$0	included above	this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	18	hours	\$130.00	\$2,340	\$0	18 hrs/insp x 1.0 insp/year x 1 per crew =	18.0 hours
<b>Subtotal - Annual Inspections</b>				<b>\$3,130</b>	<b>\$0</b>	<b>RMU-2 post-closure inspections</b>	
<i>Perpetual Care</i>							
Perpetual Care Frequencies according to Page 11 of Site-Wide and RMU-2 Post-Closure Plans							
Technician - Landfill	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x 1.0 insp/year x 2 per crew =	4.0 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Landfill Leachate Syst	4.0	hours	\$38.00	\$0	\$152	2 hrs/insp x 1.0 insp/year x 2 per crew =	4.0 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Perimeter Fencing	0.0	hours	\$38.00	\$0	\$0	4 hrs/insp x 1.0 insp/year x 2 per crew/ 8 facility units =	1.0 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - Storm Water Mgt Syst	4.2	hours	\$38.00	\$0	\$160	2 hrs/insp x 1.04 insp/year x 2 per crew =	4.2 hours loaded labor rate: loaded labor rate 2011 3rd party quote
Technician - 25-Yr Storm Event	0.0	hours	\$38.00	\$0	\$0	included above	this activity s/b included with annual storm water inspect'ns
Engineer - MSE Wall Inspection	18	hours	\$130.00	\$0	\$2,340	18 hrs/insp x 1.0 insp/year x 1 per crew =	18.0 hours
<b>Subtotal - Annual Inspections Perp-Care</b>				<b>\$0</b>	<b>\$2,804</b>	<b>RMU-2 perpetual care inspections</b>	
<i>(Subt: Assemb PCC-9.06.1)</i>				<b>\$3,130</b>	<b>\$2,804</b>	RMU-2 visual inspections. The Cost for facility fence inspection is already provided in the post closure estimate for 8 other units	

<b>PCC-9.06.2 Perimeter Fence Maint.</b>				one-eighth of total perimeter fencing allocated per SLF unit; 2% annual replacement projected			
Subt - Perimeter Fence Maint.				\$0	\$0	The Cost for facility fence repair is already provided in the post closure estimate for 8 other units	
<i>(Subt: Assemb PCC-9.06.2)</i>				\$0	\$0		

<b>PCC-9.06.3 Maint. Benchmarks/Surv</b>				Annual inspection only			
Subt - Benchmarks & Surveying				\$0	\$0		
<i>(Subt: Assemb PCC-9.06.3)</i>				\$0	\$0		

**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.06.4 Groundwater Monitoring</b>							
						sampling crew composed of two technicians; 29 monitoring wells	
Monit'g Events & Samples/Event						0.0 quart'ly + 58.0 semi-ann + 1.0 b-ann'l x 1.05 each = 61.4 samp	
Post-Closure						includes 5% QA sampling	
Technician	122.8	hours	\$38.00	\$4,666	\$0	61.4 samps @ 1.0 hrs/samp x 2 per crew = 122.8 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	61.4	samp	\$25.00	\$1,535	\$0	61.4 samps	bottles, shipping supplies
VOCs	61.4	samp	\$105.00	\$6,447	\$0	61.4 samps	Average of three quotes
Subt - GW Monitoring				<b>\$12,648</b>	<b>\$0</b>	post closure groundwater monitoring	
<b>PCC-9.06.5 Outfalls 002,003,004 SPDES Mon</b>							
Monit'g Events & Samples/Event						29.0 wells @ sample/5 years 1.05 each = 6.1 samp/yr	
Perpetual Care						Perpetual care groundwater monitoring once every five years	
Technician	12.2	hours	\$38.00	\$0	\$464	6.1 samps @ 1.0 hrs/samp x 2 per crew = 12.2 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Sampling Supplies	6.1	samp	\$25.00	\$0	\$153	6.1 samples	bottles, shipping supplies
VOCs	6.1	samp	\$105.00	\$0	\$641	6.1 samples	Average of three quotes
Subt - GW Monitoring				<b>\$0</b>	<b>\$1,257</b>	perpetual care groundwater monitoring	
<b>PCC-9.06.6 Discharge Monitoring Report</b>							
Subt - Discharge Monitoring Report						Monthly Discharge Monitoring Reports	
						submittal of SPDES Permit required Discharge Monitoring Report (DMR)	
						The Cost for facility stormwater discharge is already provided in the post closure estimate for 8 other units	
(Subt: Assemb PCC-9.06.4 thru 9.06.6)						<b>\$12,648</b> <b>\$1,257</b> RMU-2 groundwater & stormwater monitoring activities	
<b>PCC-9.06.7 Landfill Cover Maint.</b>							
Replacement of Cover	0.1925	acre	\$20,973.33	\$4,037	\$4,037	38.5 acre @ 0.5% per year = 0.1925 acres/yr	unit price based upon vegetation, topsoil, from RMU-1, Assemblies 14.17 thru 14.18
Subt - Landfill Cover Maint.				<b>\$4,037</b>	<b>\$4,037</b>	RMU-2 upper cap maintenance and replacement	
<b>PCC-9.06.8 Mowing/Grooming</b>							
Mowing	1677.0	MSF	\$3.21	\$5,388	\$5,388	1,677 MSF @ 1.0 per year = 1,677 MSF	DEC 2004 rate * deflator (2004-2010)
Fertilizing	335.4	MSF	\$3.82	\$1,281	\$1,281	1,677 MSF @ 1.0 per 5.0 years = 335.4 MSF	DEC 2004 rate * deflator (2004-2010)
Subt - Mowing/Grooming				<b>\$6,669</b>	<b>\$6,669</b>	RMU-2 mowing and fertilizing	
(Subt: Assemb PCC-9.06.7 thru 9.06.8)						<b>\$10,707</b> <b>\$10,707</b> RMU-2 cap maintenance activities: post-closure & perpetual care frequency are equal	
<b>PCC-9.06.9 MSE Wall Maint.</b>							
MSE Wall Maint.	6600	LF	\$3.03	\$19,998	\$19,998	Annual Inspections and annual repair and maintenance = \$3.03/LF. 6,600 LF of MSE wall	WM/Golder Guidance Document (12-1-10)
Subt - MSE Wall Maint.				<b>\$19,998</b>	<b>\$19,998</b>	RMU-2 MSE Wall maintenance	
(Subt: Assemb PCC-9.06.9)						<b>\$19,998</b> <b>\$19,998</b>	

**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.06.10 Leachate System Mgmt</b>						operation time = 8 hours/day x 5 days/week x 50 weeks/year = 2,000 hours	
Leachate Treatment	140624.2	gal	\$0.0178	\$2,503	\$0	140,624.2 gals estimated annual leachate volume based average prediction 0-30 years post closure	unit price derived from AWTS O&M model
Leachate Treatment - Perpetual Care	27921.3	gal	\$0.0178	\$0	\$497	27,921.3 perpetual care average years 31-60 Taken from RMU-2 2012 LeachGenModel	
Leach Treat Syst. Capital Repl Cost	0	LS	\$17,642.00	\$0	\$0	\$3,087 K div by 25 year life = \$123,495/yr div by 7 facility units = \$17,642 each (costs allocated to other 7 units at the facility)	DEC estimate of AWTS capital replacement costs @ 25 yrs
						<i>The Cost for capital replacement of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
Laborer	48.0	hours	\$39.00	\$1,872	\$1,872	4 hrs/mon x 12 mon/year = 48 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Technician	48.0	hours	\$38.00	\$1,824	\$1,824	4 hrs/mon x 12 mon/year = 48 hours	loaded labor rate: loaded labor rate 2011 3rd party quote
Primary Leachate VOC Samp & Analysis	21.0	sample	\$105.00	\$2,205	\$2,205	6 sumps x 1.05 per sump x 2.0 event/yr = 12.6 samples	Avg. of three lab quotes
Primary Leachate Metals Samp & Analysis	21.0	sample	\$188.00	\$3,948	\$3,948	6 sumps x 1.05 per sump x 2.0 event/yr = 12.6 samples	Avg. of three lab quotes
Primary Leachate PCBs Samp & Analysis	21.0	sample	\$133.33	\$2,800	\$2,800	6 sumps x 1.05 per sump x 2.0 event/yr = 12.6 samples	Avg. of three lab quotes
Secondary Leachate VOC Samp & Analysis	21.0	sample	\$105.00	\$2,205	\$2,205	6 sumps x 1.05 per sump x 2.0 event/yr = 12.6 samples	Avg. of three lab quotes
Secondary Leachate Metals Samp & Analysis	10.5	sample	\$188.00	\$1,974	\$1,974	6 sumps x 1.05 per sump = 1.0 event/yr = 6.3 samples	Avg. of three lab quotes
Secondary Leachate PP Organics Samp & Analysis	10.5	sample	\$633.33	\$6,650	\$6,650	6 sumps x 1.05 per sump = 1.0 event/yr = 6.3 samples	Avg. of three lab quotes
Electrical Costs - Pumps	384.6	KWH	\$0.086	\$33	\$33	343.7 hr/yr x 1.5 hp/hr x 0.746 kw/hp = 384.6 KWH	2004 DEC Rate * Implicit Deflator
Replacement of Main Pump T-150	0.2	pump	\$14,425.00	\$2,885	\$2,885	1 pump per 5 years = 0.2 pumps	30 hp pump, site experience
Replacement of Secondary Pump T-150	0.0	pump	\$14,425.00	\$0	\$0	1 pump per 5 years = 0.2 pumps	Pump not necessary in post closure
Replace Primary Sump Pumps	1.2	pump	\$1,382.00	\$1,658	\$1,658	6 pumps x 20.0% pu/yr = 1.2 pumps	1.5 hp submersible pump, site experience
Replace Secondary Sump Pumps	0.9	pump	\$850.00	\$765	\$765	6 pumps x 15.0% pu/yr = 0.9 pumps	4" subm pump, 0.5 hp, , site experience
Replacement of Pump Dischg Hose	2.1	hose	\$211.54	\$444	\$444	2.1 pumps x 1 per pump = 2.1 hoses	DEC 2004 rate * deflator (2004-2010)
Disposal of Pumps/Hoses	21.0	CF	\$12.45	\$261	\$261	2.1 pu/hos @ 10 CF/pump = 21 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replacement of Piping - 2"/4"	4.8	LF	\$53.25	\$256	\$256	960 LF @ 0.5% per year = 4.8 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 2"/4"	1.6	CF	\$12.45	\$20	\$20	4.8 LF @ 0.33 CF/LF = 1.6 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Replace Piping - 4"/8" & 6"/10"	31.4	LF	\$73.50	\$2,308	\$2,308	6,280 LF @ 0.5% per year = 31.4 LF/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Piping - 4"/8" & 6"/10"	15.7	CF	\$12.45	\$195	\$195	31.4 LF @ 0.50 LF/drum = 15.7 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Pipe Cleaning - 8" diameter	4205.0	LF diameter	\$2.14	\$8,999	\$8,999	4,205 LF @ 1.0 events/yr = 4,205 LF	DEC 2004 rate * deflator (2004-2010)
Subt - Leachate Coll Syst Mgmt				<b>\$43,806</b>	<b>\$41,800</b>	<i>annual O&amp;M costs plus capital replacement of treatment system, pumps, and piping</i>	
<b>PCC-9.06.11 AWTS Operation</b>						Shift operation of the AWTS for 12 months	no DEC estimate for this activity: DEC Estimate included in unit rat
Subt - AWTS Operation				<b>\$0</b>	<b>\$0</b>	AWTS Operation - operation of AWTS for twelve (12) months during post closure or perpetual care of the site	
						<i>The Cost for operation of AWTS is already provided in the post closure estimate for 7 other units that generate leachate</i>	
<b>PCC-9.06.12 Site Waters Treatment</b>							
Subt - Site Waters Treatment				<b>\$0</b>	<b>\$0</b>	<i>The Cost for treatment of of site waters is already provided in the post closure estimate for 7 other units</i>	Labor included in PCC-1.7a
<b>PCC-9.06.13 Batch Tank Qualification</b>						2 Batch Qualification tanks prior to discharge to facultative ponds	To Meet LDR requirements
Subt - Batch Tank Qualification				<b>\$0</b>	<b>\$0</b>	<i>The Cost for tank qualifications is already provided in the post closure estimate for 7 other units</i>	Samples collected by lab technician
<b>PCC-9.06.14 Pond Sampling &amp; Analysis (Outfall 001)</b>						production rate = 2.0 hours per composite sample for a three-person crew	SPDES PreQual Sampling of Outfall 001 prior to discharge
Batch Sampling Events						1 events @ 3 samp/evnt= 3 samples	sampling & analysis prior to pond discharge
Subt - Pond Sampling & Analysis				<b>\$0</b>	<b>\$0</b>	<i>The Cost for pond qualifications is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.06.15 Pond S&amp;A Certification &amp; Report</b>						one event per year for divers to check discharge pipe; one predischarge qualification report	
Subt - S&A Cert'n & Report				<b>\$0</b>	<b>\$0</b>	<i>diver(s) to check discharge pipe; also engineer's predischarge qualification report</i>	Fac Pond 8 out of service empty

**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.06.16 Empty (Pump) FAC Pond to Outfall 001</b>						prod'n rate = 960,000 gals/day = 60,000 gals/hr = 1,000 gals/min per facility est @ 16 hrs/day O&M	Treated wastewater from all 7 units
<i>FAC Pond 1/2 Inventory in Gallons</i>		<i>gals</i>	<i>n/a</i>			<i>45.8 total hours req'd to pump</i>	<i>&amp; site waters</i>
Subtotal - Pump FAC Pond 1/2				\$0	\$0	<i>transfer contents of FAC Pond to discharge pipe to Niagara River (3,000 ft). The Cost for discharge to outfall is already provided in the post closure estimate for 7 other units</i>	
<i>(Subt: Assemb PCC-9.06.10 thru 9.06.16)</i>				\$43,806	\$41,800	<i>RMU-2 share of annual O&amp;M and capital costs for leachate collection &amp; treatment: provided in post closure cost estimate for 7 other units at facility</i>	

<b>PCC-9.06.17 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.06.18 N/A</b>							
Subt - N/A				\$0	\$0		
<b>PCC-9.06.19 N/A</b>							
Subt - N/A				\$0	\$0		
<i>(Subt: Assemb PCC-9.06.17 thru 9.06.19)</i>				\$0	\$0	<i>RMU-2 share of annual leachate transport costs - n/a, as leachate pumped directly to the AWTS</i>	

<b>PCC-9.06.20 Tank Assessments</b>						sixteen (16) tanks requiring internal & external inspections once every five years by 1 PE + 2 Techs	
<i>Internal &amp; External Inspections</i>						<i>16 tanks @ 5 yr inspect = 3.2 tnks/yr @ 7 areas = 0.5 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 16 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
<b>PCC-9.06.21 Tank Assessments</b>						thirty (32) tanks requiring only external inspections once every five years by 1 PE	
<i>External Only Inspections</i>						<i>30 tanks @ 5 yr inspect = 6.0 tnks/yr @ 7 areas = 0.9 tnks/yr</i>	
Subt - Tank Assessments				\$0	\$0	<i>inspection of 32 tanks</i>	
						<i>The Cost for tank assessment is already provided in the post closure estimate for 7 other units</i>	
<i>(Subt: Assemb PCC-9.06.20 thru 9.06.21)</i>				\$0	\$0	<i>RMU-2 share of annual tank assessment costs: post-closure &amp; perpetual care frequency are equal</i>	

<b>PCC-9.06.22 Replace Mon Well Pump</b>							
Replace Mon Well Pumps	0.725	pump	\$900.00	\$653	\$653	29 pumps @ 2.5% per year = 0.725 pumps/yr	Site experience third party costs
Technician	2.0	Hour	\$38.00	\$76	\$76	2 hours per year	third party labor costs
Disposal of Pumps	0.725	CF	\$12.45	\$9	\$9	0.725 pumps @ 1.0 CF/pump = 0.725 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Concrete Pads	0.725	pad	\$131.50	\$95	\$95	29 pads @ 2.5% per year = 0.725 pads/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Well Surface Concrete	1.45	CF	\$12.45	\$18	\$18	0.725 pads @ 2.0 CF/pad = 1.45 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Repair Mon Well Covers	0.725	each	\$371.63	\$269	\$269	29 covers @ 2.5% per year = 0.725 covers/yr	DEC 2004 rate * deflator (2004-2010)
Disposal of Mon Well Covers	0.3625	CF	\$12.45	\$5	\$5	0.725 covers @ 0.5 CF/cover = 0.3625 CF	DEC 2004 closure rate for large debris * deflator (2004-2010)
Subt - Replace Mon Well Pumps				\$1,125	\$1,125	<i>monitoring well pump maintenance and replacement</i>	
<i>(Subt: Assemb PCC-9.06.22)</i>				\$1,125	\$1,125	<i>RMU-2 mon well pump maintenance &amp; replacement: post-closure &amp; perpetual care frequency are equal</i>	

**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
<b>PCC-9.06.23 Drainage Ditch Repair</b>						ditches estimated to be 10 feet in width	
<i>RMU-2 Drainage Ditches</i>						Perimeter Ditch + Drainage Tile System = 6,500 + 16,400 = 22,900 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
<i>RMU-2 Downchutes</i>						1370 LF 26" pipe 800 LF 6" pipe	
Drainage Ditch Repair	0.053	acre	\$5,698.00	\$302	\$302	22,900 LF x 10 ft/LF = 5.3 acres @ 1.0% per year = 0.053 acres	unit price based upon \$5,698/acre (RMU-1 Assembly 14.20)
Downchute Pipe Cleaning 26"	68.5	LF	\$2.14	\$147	\$147	1,370 LF x 5.0% per year = 68.5 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Downchute Pipe Cleaning 6"	40	LF	\$2.14	\$86	\$86	800 LF x 5.0% per year = 40 LF	DEC 2004 rate * deflator (2004-2010) for cleaning 8" dia pipe
Subt - Drainage Ditch Repair				<b>\$534</b>	<b>\$534</b>	stormwater drainage ditch repair	
						The cost of repair of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.06.24 Drainage Ditch Cleaning</b>						ditches estimated to be 10 feet wide; sediment estimated to be 4 inches deep.	
<i>RMU-2 Drainage Ditches</i>						15500 LF	drainage ditches specific to RMU-2 unit
<i>Facility-wide Drainage Ditches</i>						22600 LF div by 8 units = 2825 LF 0 LF for RMU-2	drainage ditches in non-specific areas of facility
Drainage Ditch Sediment Cleaning	28.3	CY	\$2.38	\$67	\$67	22,900 LF x 10.0 ft/LF x 0.333 feet (4") = 2827 CY @ 1%/yr = 28.3 CY	unit price based upon FAC Ponds 1/2 excavation (6.11)
Transportation of Ditch Sediment	9.6	miles	\$3.25	\$31	\$31	38.2 tons @ 20 tons/load = 1.9 loads @ 5 miles per load = 9.6 miles	unit price based upon FAC Ponds 1/2 transportation (6.13)
Disposal of Ditch Sediment	38.2	ton	\$35.00	\$1,337	\$1,337	28.3 CY @ 1.35 ton/CY = 38.2 tons	unit price based upon FAC Ponds 1/2 disposal (6.14)
Subt - Drainage Ditch Cleaning				<b>\$1,436</b>	<b>\$1,436</b>	stormwater drainage ditch cleaning	
						The cost of cleaning of facility-wide ditches is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.06.25 Basin Cleaning</b>						sediment estimated to be 4 inches deep.	
<i>Basin No. 1</i>						140625 SF div by 8 units = 17578 SF	
<i>Basin No. 2</i>						150000 SF div by 8 units = 18750 SF	
Subt--Basin Cleaning				<b>\$0</b>	<b>\$0</b>	facility stormwater basin cleaning	
						The cost of cleaning of facility basins is provided in post-closure estimate for 8 other units at the facility.	
<b>PCC-9.06.26 Culvert Maint/Replace</b>						avg culvert = 25' (SLF 11) & 40' (sitewide); various diameters	
<i>RMU-2 Culverts</i>						6 culverts x 40 feet long = 240 LF	culverts specific to RMU-2 unit
<i>Facility-wide Culverts</i>						20 culverts x 40 feet long = 800 LF div by 8 units = 0 LF for RMU-2	culverts in non-specific areas of facility
Culvert Cleaning - 18" diameter avg	240	LF	\$2.14	\$513	\$513	240 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culvert - 18" diam avg (RMU-2)	80	LF	\$11.61	\$929	\$929	240.0 LF @ 2 culvert/yr = 80 LF	DEC 2004 rate * deflator (2004-2010)
Repl Culv't - 18" diam avg (sitewide)		LF	\$22.35	\$0	\$0	40.0 LF @ 1.00 culvert/yr = 40 LF 0 LF for RMU-2	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Ditch Excavation	60	CY	\$2.96	\$178	\$178	80.0 LF x 0.75 CY/LF = 60 CY	DEC 2004 rate * deflator (2004-2010)
Replace Culvert - Bkfill/Compaction	60	CY	\$3.86	\$232	\$232	60 CY	DEC 2004 rate * deflator (2004-2010)
Subt - Culvert Maint/Replacement				<b>\$1,851</b>	<b>\$1,851</b>	culvert maintenance and replacement	
						The cost of cleaning of maintaining facility-wide drainage is provided in post-closure estimate for 8 other units at the facility.	
<i>(Subt: Assemb PCC-9.06.23 thru 9.06.26)</i>				<b>\$3,821</b>	<b>\$3,821</b>	RMU-2 storm drainage maintenance & replacement: post-closure & perpetual care frequency are equal	

**PCC-9.06: RMU-2 (6-Cells)**

Basic Closure Activities: Direct Costs	Estimated Quantity	Unit of Measure	Unit Price	2011 CWM Extended Price - Annual Cost Post Closure Period	2011 CWM Extended Price - Annual Cost Perpetual Care	Basis of Production and Quantities for In-house Estimate	In-house Pricing References
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<b>PCC-9.06.27 Road Maint/Replace</b>								
						gravel roads = 15 feet wide; asphalt roads = 20 feet wide		
RMU-2 Gravel Roads						6500 LF x 15 feet wide/9 SF/SY = 10,833 SY @ 2% per year = 216.6 SY		
Facility-wide Asphalt Roads						21120 LF x 20 feet wide = 422400 SF @ 1% per year = 0 SF for RMU-2	asphalt roads in non-specific areas of facility	
RMU-2 Gravel Road Repair	216.6	SY	\$3.12	\$676	\$676	216.6 SY	DEC 2004 rate * deflator (2004-2010)	
Facility-wide Asphalt Roads		SF	\$1.35	\$0	\$0	4,224.0 SF div by 8 units = 528.0 SF 0 SF for RMU-2	DEC 2004 rate * deflator (2004-2010)	
Subt - Road Maint/Replacement				<b>\$676</b>	<b>\$676</b>	road maintenance and replacement		
						The cost of cleaning of maintaining facility-wide roads is provided in post-closure estimate for 8 other units at the facility.		
(Subt: Assemb PCC-9.06.27)						<b>\$676</b>	<b>\$676</b>	RMU-2 road maintenance & replacement

Total Non-Super hours 259.6

<b>PCC-9.06.28 PPE Use/H&amp;S Planning</b>								
						Level C @ 10%; Mod Level C @ 15%; Level D @ 75% for tot non-supv hrs for all tasks; HASP @ 2.5% of non-supv hrs		
PPE Usage - Level D	24.4	days	\$0.00	\$0	\$0	259.6 hours @ 8 hr/day = 32.5 days @ 75% "D" days = 24.4 days	75% of non-supv hrs in Level D (used facility price: \$0/day)	
PPE Usage - Mod Level C	4.9	days	\$9.00	\$44	\$44	259.6 hours @ 8 hr/day = 32.5 days @ 15% "C" days = 4.9 days	15% of non-supv hrs in Mod Level C (used facility price: \$9/day)	
PPE Usage - Level C	3.2	days	\$25.00	\$80	\$80	259.6 hours @ 8 hr/day = 32.5 days @ 10% "C" days = 3.2 days	10% of non-supv hrs in Level C (used facility price: \$25/day)	
Health & Safety Officer	6.5	hours	\$75.00	\$488	\$488	259.6 hours @ 2.5% hr/hr = 6.5 hours	loaded labor rate: loaded labor rate 2011 3rd party quote	
Subt - PPE Usage/H&S Planning				<b>\$612</b>	<b>\$612</b>			
<b>PCC-9.06.29 Supervision</b>								
Foreman	0	hours	\$65.00	\$0	\$0	Included in Post-Closure cost estimates for other 7-units at the facility that generate leachate	loaded labor rate: loaded labor rate 2011 3rd party quote	
Site Project Manager	0	hours	\$75.00	\$0	\$0	Included in Gen'l Contractor G&A/Home Office indirect costs	loaded labor rate: loaded labor rate 2011 3rd party quote	
Subtotal - Supervision				<b>\$0</b>	<b>\$0</b>			
(Subt: Assemb PCC-9.06.28 thru 9.06.29)						<b>\$612</b>	<b>\$612</b>	supervision, health & safety, and certification

<b>PCC 9.06 (6-Cells): RMU-2 Direct Cost</b>				<b>\$96,523</b>	<b>\$82,798</b>		
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## LEACHATE GENERATION RATES MODIFIED LINEAR REGRESSION OF RMU-2

Years After Closure	Leachate Removed (Actual)	RMU-2 Leachate Removed (Predicted)	SLF-12 leachate removed per acre
1	n/a	1,012,982	26311.2
2	n/a	635,670	16510.9
3	n/a	339,628	8821.5
4	n/a	199,526	5182.5
5	n/a	249,912	6491.2
6	n/a	135,228	3512.4
7	n/a	107,312	2787.3
8	n/a	118,031	3065.7
9	n/a	116,218	3018.6
10	n/a	151,652	3939.0
11	n/a	121,503	3155.9
12	n/a	109,604	2846.9
13	n/a	76,678	1991.6
14	n/a	79,307	2059.9
15	n/a	66,089	1716.6
16	n/a	82,019	2130.4
17	n/a	90,830	2359.2
18	n/a	65,498	n/a
19	n/a	62,319	n/a
20	n/a	59,447	n/a
21	n/a	56,837	n/a
22	n/a	54,456	n/a
23	n/a	52,274	n/a
24	n/a	50,267	n/a
25	n/a	48,414	n/a
26	n/a	46,698	n/a
27	n/a	45,105	n/a
28	n/a	43,620	n/a
29	n/a	42,235	n/a
30	n/a	40,938	n/a
31	n/a	39,721	n/a
32	n/a	38,578	n/a
33	n/a	37,501	n/a
34	n/a	36,485	n/a
35	n/a	35,525	n/a
36	n/a	34,616	n/a
37	n/a	33,754	n/a
38	n/a	32,936	n/a
39	n/a	32,159	n/a

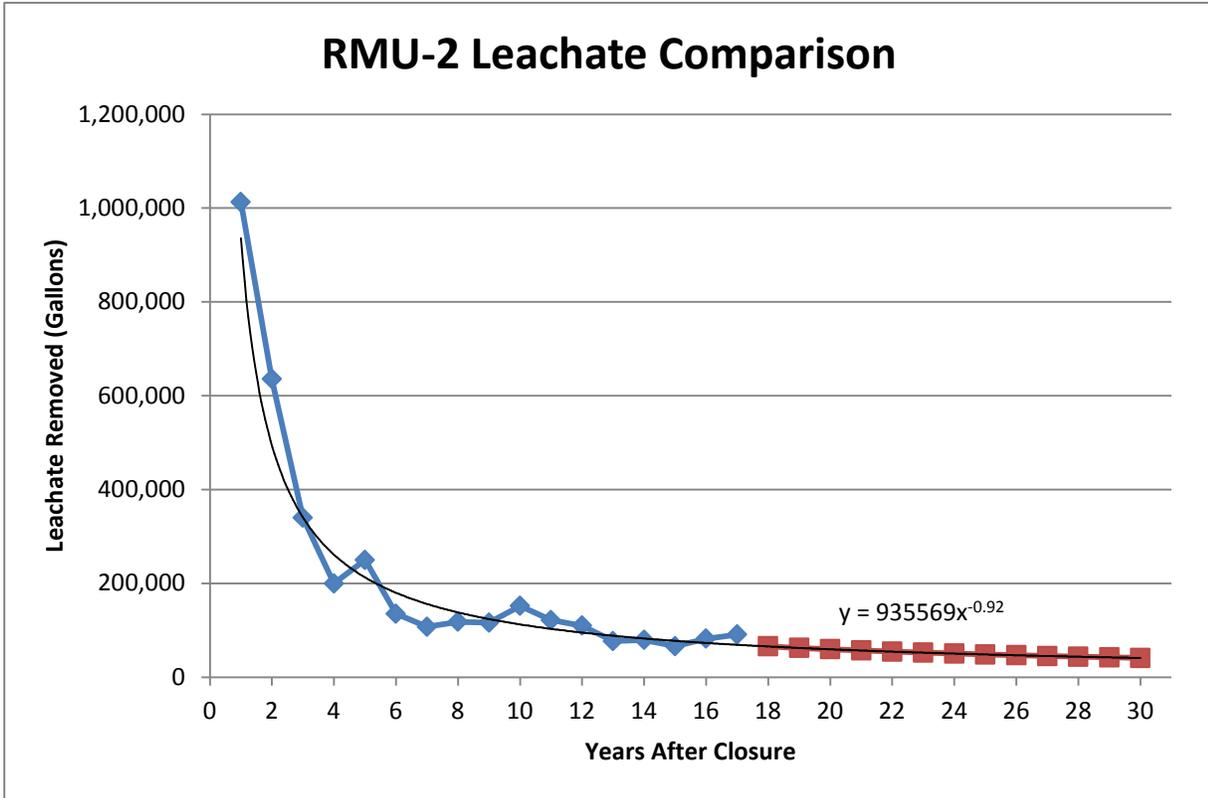
## LEACHATE GENERATION RATES MODIFIED LINEAR REGRESSION OF RMU-2

Years After Closure	Leachate Removed (Actual)	RMU-2 Leachate Removed (Predicted)	SLF-12 leachate removed per acre
40	n/a	31,418	n/a
41	n/a	30,712	n/a
42	n/a	30,039	n/a
43	n/a	29,396	n/a
44	n/a	28,781	n/a
45	n/a	28,192	n/a
46	n/a	27,627	n/a
47	n/a	27,086	n/a
48	n/a	26,566	n/a
49	n/a	26,067	n/a
50	n/a	25,587	n/a
51	n/a	25,125	n/a
52	n/a	24,680	n/a
53	n/a	24,252	n/a
54	n/a	23,838	n/a
55	n/a	23,439	n/a
56	n/a	23,054	n/a
57	n/a	22,681	n/a
58	n/a	22,321	n/a
59	n/a	21,973	n/a
60	n/a	21,636	n/a

Note:

Model based on the per acre generation rate of SLF-12 for each year since closure. The generation rate per acre for SLF-12 was applied to RMU-2 since both landfills are of similar construction. For years after the 17 years since closure of SLF-12, Golder calculated the predicted leachate removed using a power trendline based on actual data from years 0-17.

# LEACHATE GENERATION RATES MODIFIED LINEAR REGRESSION OF RMU-2



- 145,343 Average of years 0 through 30 years
- 3,775 Average per acre 0 through 30 years
- 28,858 Average perpetual care years 31-60
- 750 Average per acre perpetual care years 31-60

Scenario	0 thru 30	31 thru 60	Cost Estimate
1-Cell	26049	5172	PCC 9.01.10
2-Cells	49454	9819	PCC 9.02.10
3-Cells	73615	14617	PCC 9.03.10
4-Cells	95889	19039	PCC 9.04.10
5-Cells	120427	23911	PCC 9.05.10
6-Cells	145343	28858	PCC 9.06.10

Waste Cover Area Parameters

1-Cell Scenario (Cell 20)	6.9
2-Cell Scenario (Cells 18,20)	13.1
3-Cell Scenario (Cells 18,20,19)	19.5
4-Cell Scenario (Cells 18,20,19,17)	25.4
5-Cell Scenario (Cells 18,20,19,17,16)	31.9
6-Cell Scenario (Cells 18,20,19,17,16,15)	38.5

**“PROCESS & INSTRUMENTATION DIAGRAMS (PIDS) FOR TANK SYSTEMS”  
REVISIONS/ADDITIONS**

**&**

**“AQUEOUS WASTE TREATMENT SYSTEM OPERATIONS AND MAINTENANCE  
(O&M) MANUAL” REVISIONS/ADDITIONS**

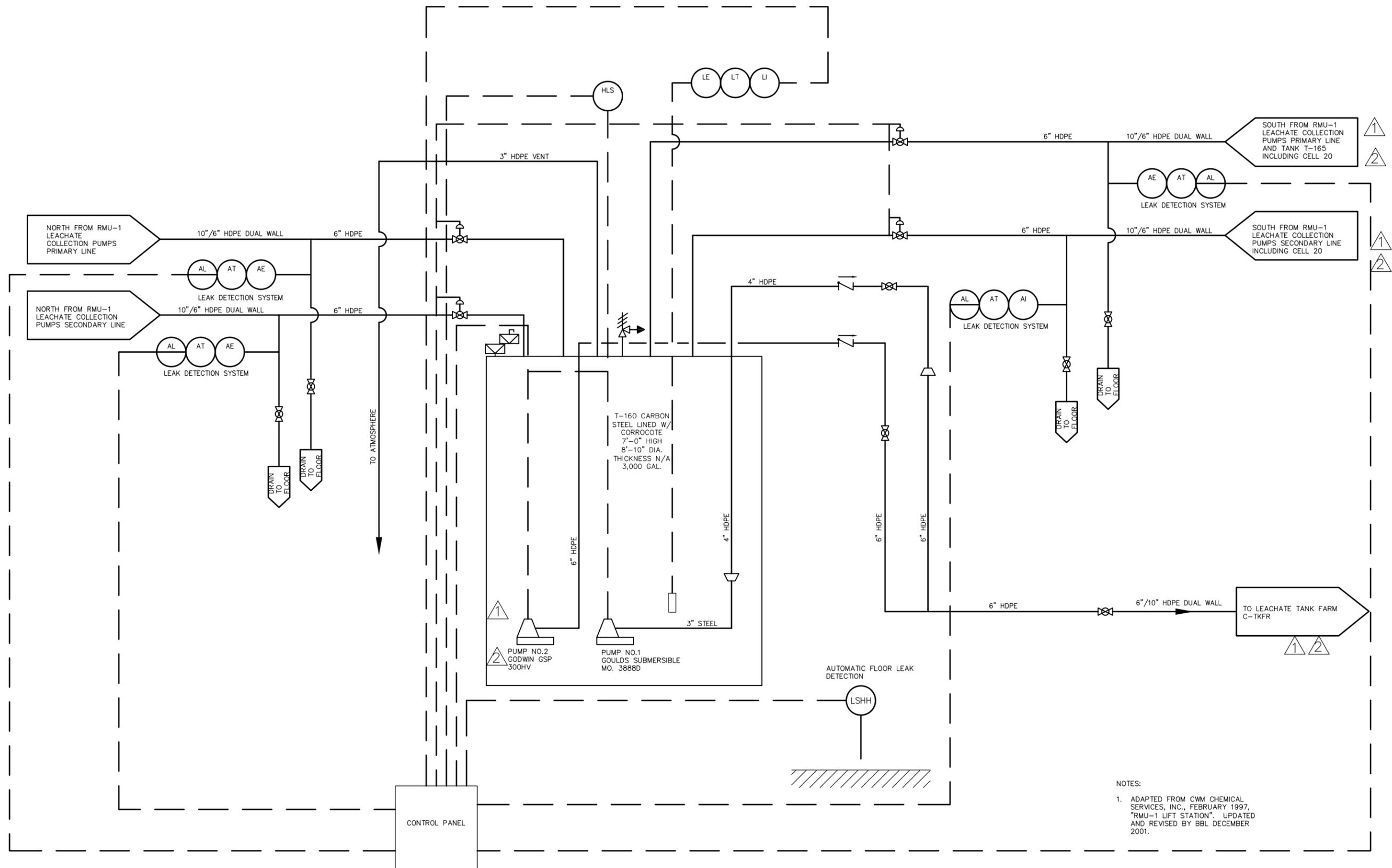
**ATTACHEMENT 1**  
**Proposed Revisions to Process & Instrumentation Diagrams and**  
**AWTS O&M Manual for**  
**RMU-2 Development**

Revisions to Process & Instrumentation Diagrams (Sitewide Permit Reference Document)

- Sheet 3 – RMU-1 Lift Station with RMU-2 Cell 20 (dated 5/23/13). Replaces Sheet 3 (dated 3/20/12) in currently approved P&ID package upon construction of Cell 20 of RMU-2. Sheet 3 shall be deleted from the P&ID package upon construction of Cell 17 of RMU-2, closure and demolition of tank T-160 and RMU-1 Lift Station Building, and installation of new leachate transfer forcemains from RMU-1 and RMU-2.
- Sheet 9A – SLF-12/RMU-1 Oil Water Separator (RMU-2 Final Buildout, dated 5/23/13). Sheet 9A will replace Sheet 9 (dated 4/24/12) in currently approved P&ID package upon construction of future cells of RMU-2.

AWTS Process Flow Diagram

- Figure 1.1(a) – AWTS Flow Chart. Replaces Figure 1.1 of the currently approved AWTS O&M Manual, dated September 2013 upon construction of Cell 20.
- Figure 1.1(b) – AWTS Flow Chart. Replaces Figure 1.1(a) of the AWTS O&M Manual upon construction of Cell 17 of RMU-2, closure and demolition of tank T-160 and RMU-1 Lift Station Building, and installation of new leachate transfer forcemains from RMU-1 and RMU-2.



NOTES:  
 1. ADAPTED FROM CWM CHEMICAL SERVICES, INC., FEBRUARY 1997, "RMU-1 LIFT STATION". UPDATED AND REVISED BY BBL DECEMBER 2001.

REVISION	NO.	BY	DATE
ADDED RMU-2 CELL 20 AND GENERAL SYSTEM UPDATES	1	JCD	5/23/13
GENERAL SYSTEM UPDATES	2	JCD	3/20/12

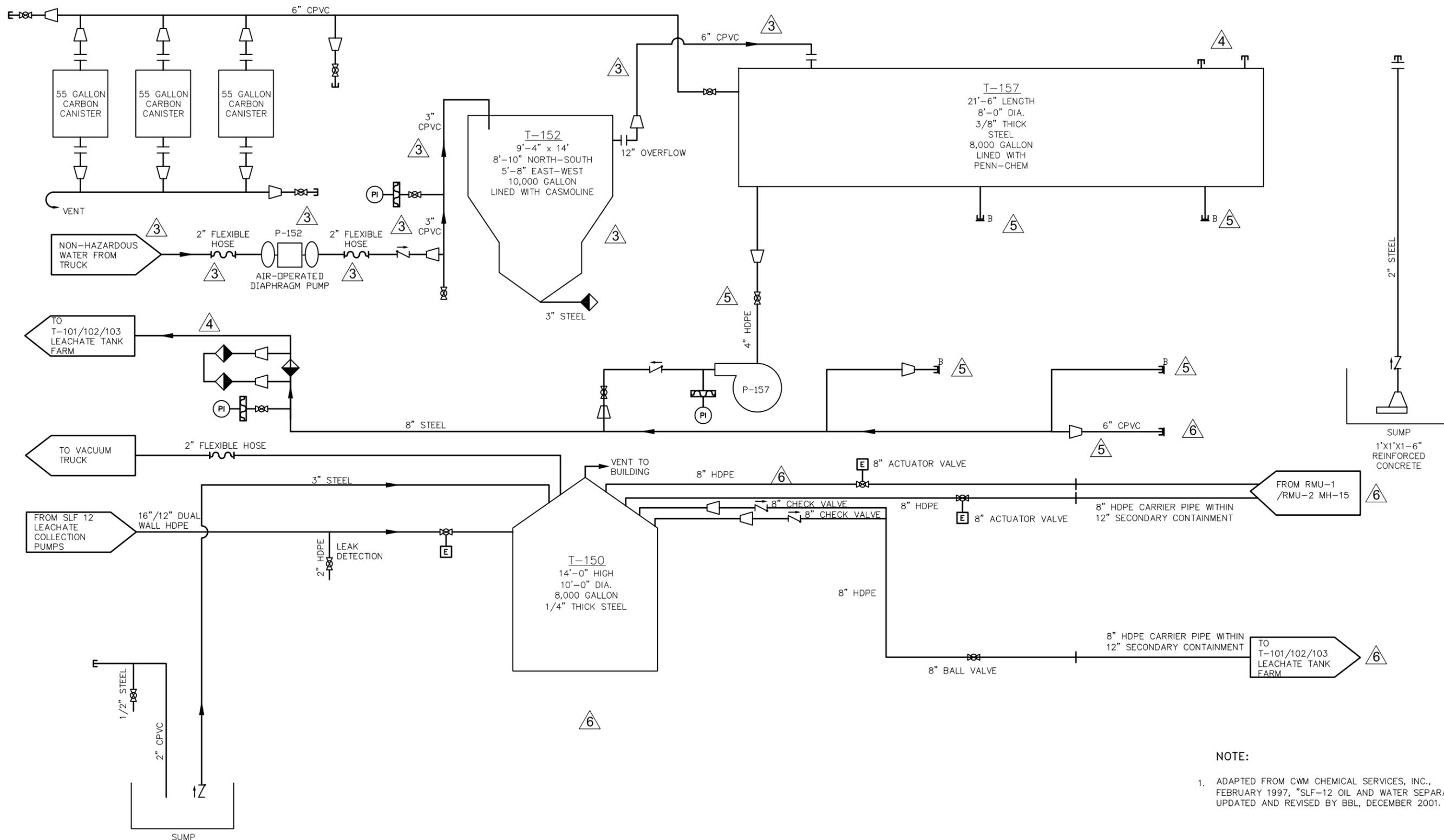
**EnSol, Inc.**  
 Environmental Solutions  
 661 MAIN STREET  
 NIAGARA FALLS, NY 14301  
 PHONE (716) 285-3920 FAX (716) 285-3928

PROJECT NO:	12-7008	TITLE:	RMU-1 LIFT STATION WITH RMU-2 CELL 20 PROCESS AND INSTRUMENTATION DIAGRAM		
SCALE:	NOT TO SCALE	PROJECT:	CWM FACILITY P&ID UPDATES		
DWG:	D03_12-7008 C-RMU-1 SHT3 REV 2.dwg	PREPARED FOR:	CWM CHEMICAL SERVICES, LLC. MODEL CITY FACILITY		
DES. BY:	JCD	DRW. BY:	JCD	CHK. BY:	BDS
DATE:	MARCH 2012	TOWN OF PORTER	COUNTY OF NIAGARA	STATE OF NEW YORK	

DRAWING  
**C-RMU-1**  
 WITH CELL 20  
 (SHEET 3)

X:\AAAgj\CWM\13-7017 RMU-2 Permit P & ID Drawing Updates (Task 3)\ACAD\003\_12-7008 C-RMU-1 SHT3 REV 2.dwg, 5/24/2013 1:31:27 PM

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145 SECTION 7209, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.



NOTE:  
 1. ADAPTED FROM CWM CHEMICAL SERVICES, INC., FEBRUARY 1997, "SLF-12 OIL AND WATER SEPARATOR". UPDATED AND REVISED BY BBL, DECEMBER 2001.

REVISION	NO.	BY	DATE
REMOVED 6" Ø CPVC AND 6" Ø STEEL PIPING FROM T-150. ADDED 8" Ø HDPE PIPING WITH VALVES FROM T-150 TO T-101/102/103	3	JCD	5/23/13
REMOVED P-158 AND P-159 AND 8" Ø STEEL PIPING. BLIND FLANGED T-157 OUTLETS.	4	JCD	4/24/12
DISCONNECTED/ CLOSED TANK T-157. REMOVED 8" Ø PIPING. ADDED 6" Ø CPVC BY PASS.	5	CAC	9/14/11
ADDED TANK T-152 AND ASSOCIATED PIPING & COMPONENTS	6	MJM	4/25/08
REMOVED BAG FILTERS; LABELLED PUMPS; REMOVED PRESSURE GAGE AND VALVES; LABELLED 2" STEEL.	7	MJM	11/15/06

**EnSol, Inc.**  
 Environmental Solutions  
 661 MAIN STREET  
 NIAGARA FALLS, NY 14301  
 PHONE (716) 285-3920 FAX (716) 285-3928

PROJECT NO:	05-7017
SCALE:	NOT TO SCALE
DWG:	05-7017-SLF12 OWS SHT9.DWG
DRAWN BY:	MJM
CHECKED BY:	BDS
DATE:	JULY 2006

TITLE: <b>SLF12 OIL WATER SEPARATOR (RMU-2 FINAL BUILDOUT)</b>		
PROCESS AND INSTRUMENTATION DIAGRAM		
PROJECT: CWM FACILITY P & ID UPDATES		
PREPARED FOR: CWM CHEMICAL SERVICES, LLC., MODEL CITY FACILITY		
TOWN OF PORTER	COUNTY OF NIAGARA	STATE OF NEW YORK
DRAWING		<b>C-SLF12</b>
		(SHEET 9A)

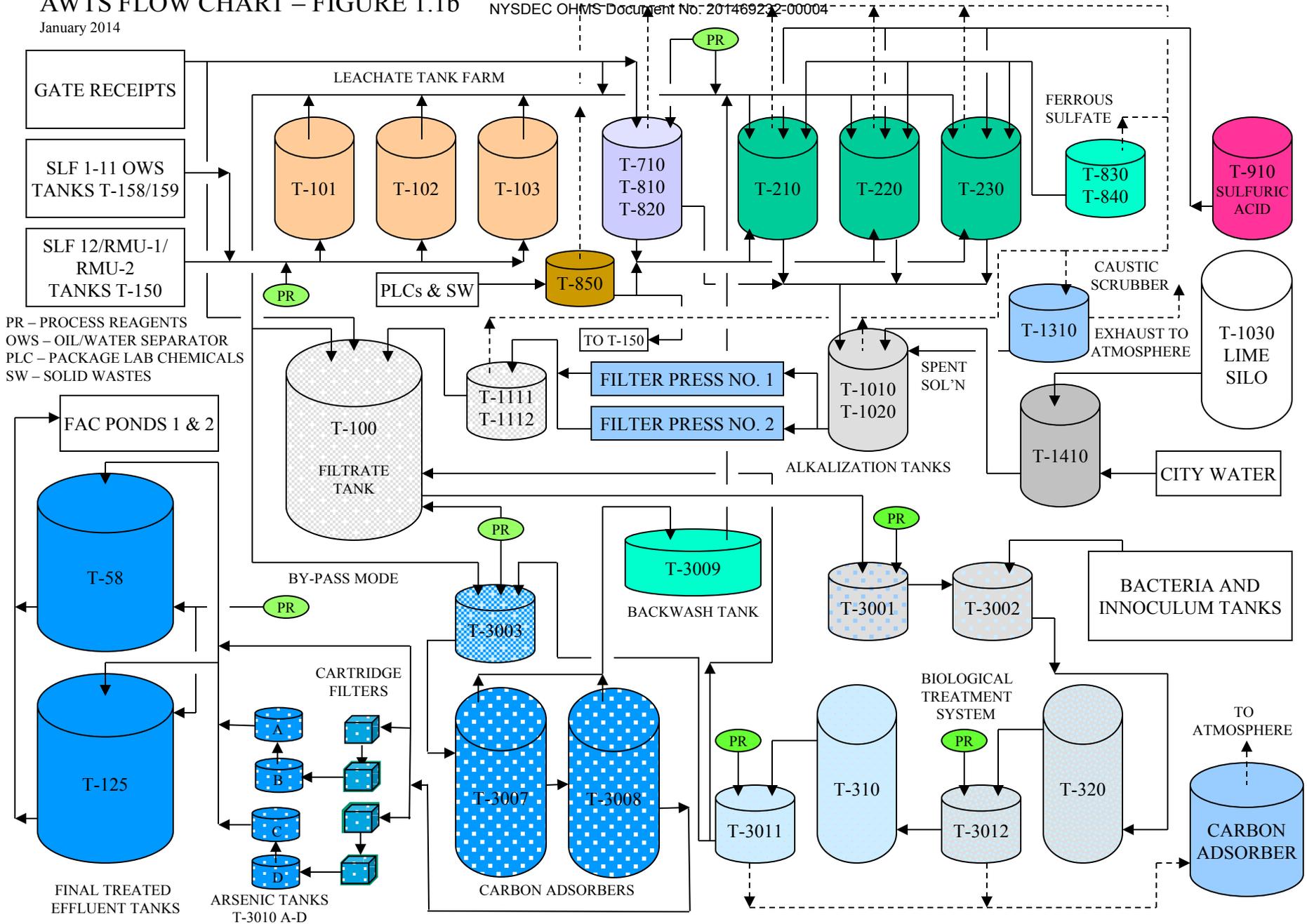
X:\AAAF\CMW\13-7017\_RMU-2\_Permit P & ID Drawing Updates (Task 3)\ACAD\009\_08-7025-SLF12\_OWS\_SHT9\_REV6.dwg, 5/24/2013 1:56:49 PM



# AWTS FLOW CHART – FIGURE 1.1b

January 2014

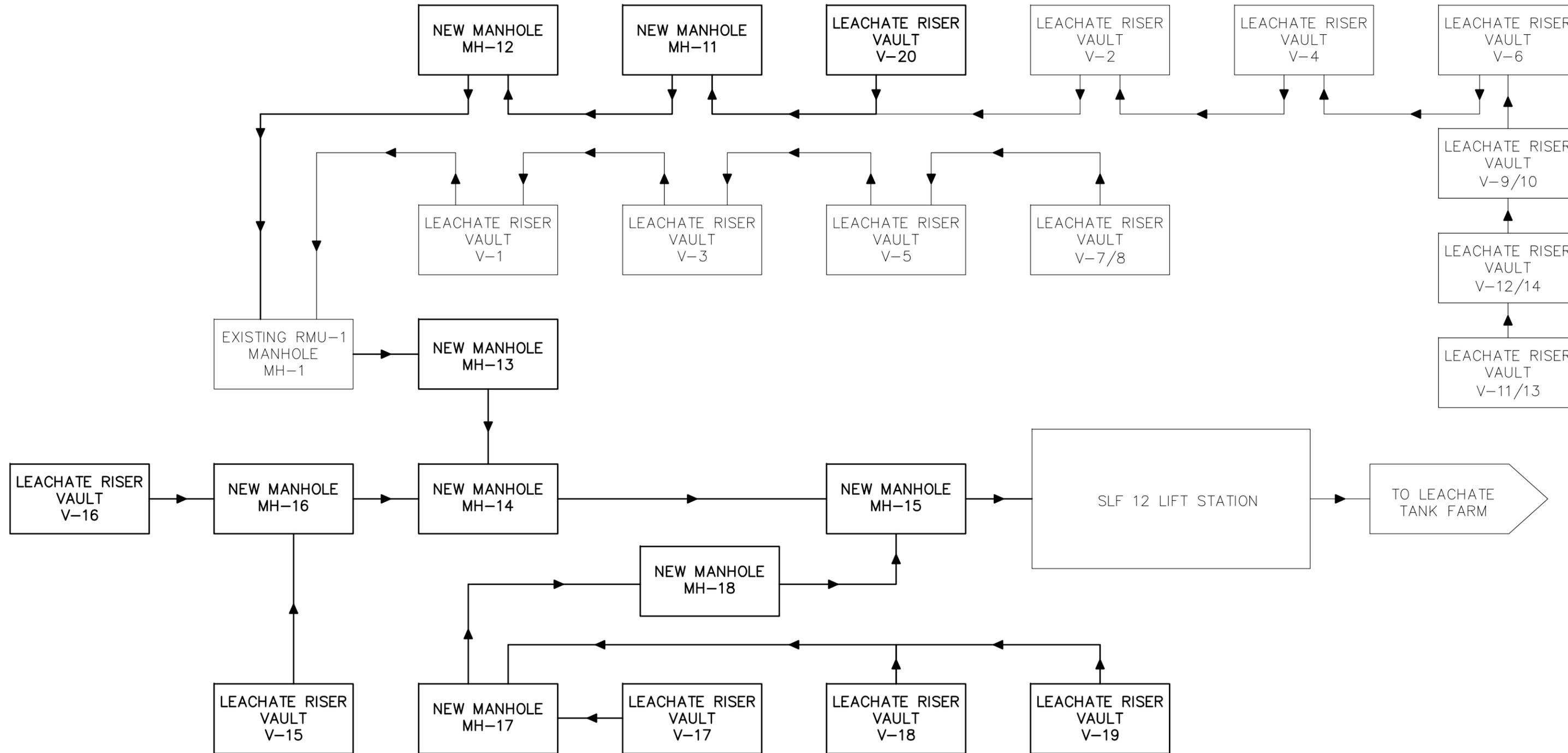
NYSDEC OHMS Document No. 201469232-00004



**ATTACHMENT 2**  
**Process Flow Diagram and**  
**Process & Instrumentation Diagrams for**  
**RMU-2 Development**

RMU-1/RMU-2 Process Flow Diagram and Piping & Instrumentation Diagrams

- Figure 1 – RMU-2 Process Flow Diagram at Final Buildout
- Figure 2 – RMU-1 Piping & Instrumentation Diagram at Final Buildout
- Figure 3 – RMU-2 Piping & Instrumentation Diagram at Final Buildout

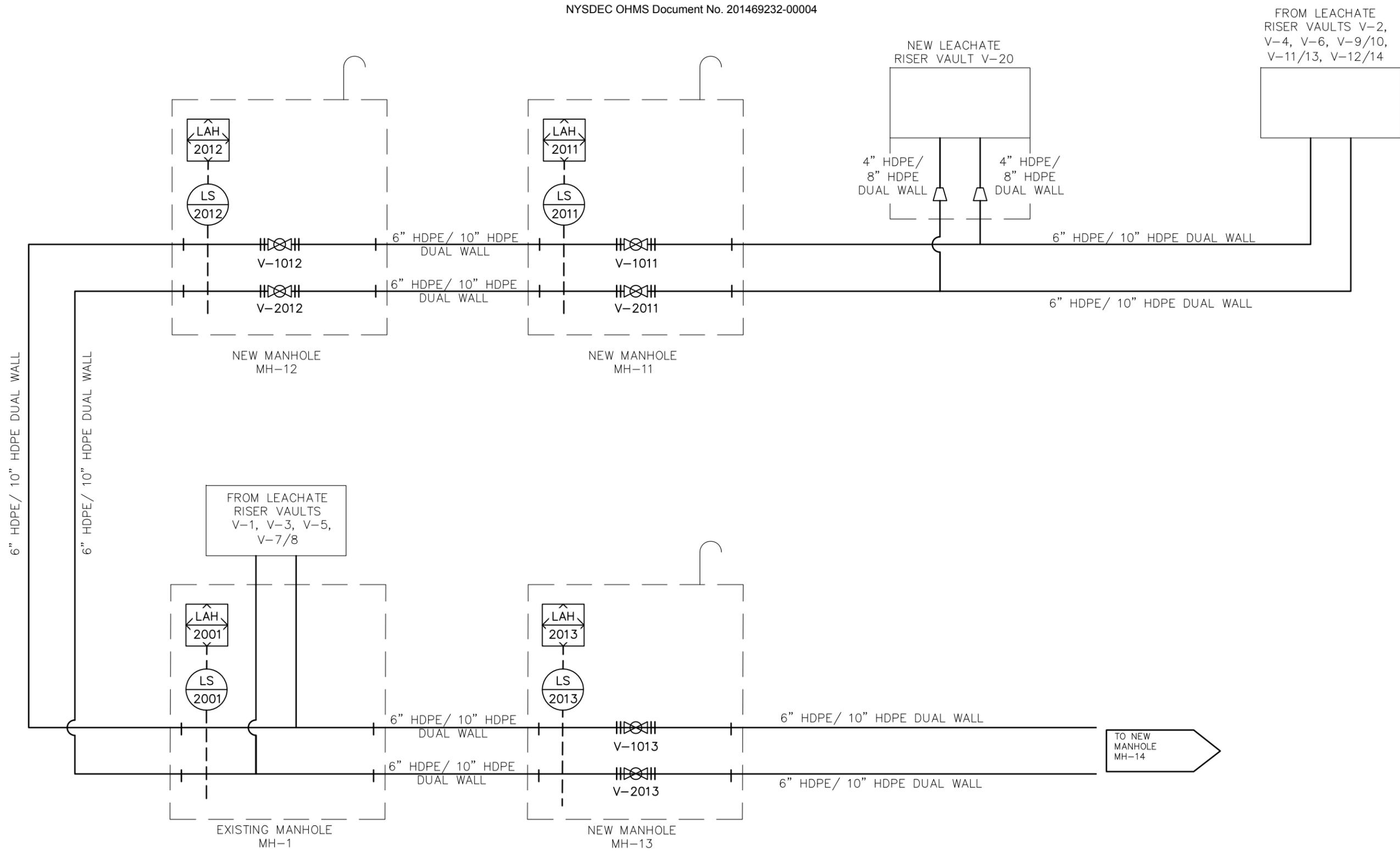


NOTES:  
 1. BOLD INDICATES NEW INFRASTRUCTURE

<b>RMU-2                  PROCESS FLOW DIAGRAM                  FINAL BUILDOUT</b>	
CWM CHEMICAL SERVICES, LLC <small>MODEL CITY, STATE OF NEW YORK</small>	
<b>EnSol, Inc.</b> Environmental Solutions	661 MAIN STREET NIAGARA FALLS, NY 14301 PHONE (716) 285-3920 FAX (716) 285-3928
MAY 2013	PN: 13-7017

**FIGURE  
1**

X:\AAAgj\CWM\13-7017 RMU-2 Permit P & ID Drawing Updates (Task 3)\ACAD\01\_13-7017 RMU-2 PROCESS FLOW DIAGRAM.dwg, 5/24/2013 1:38:10 PM

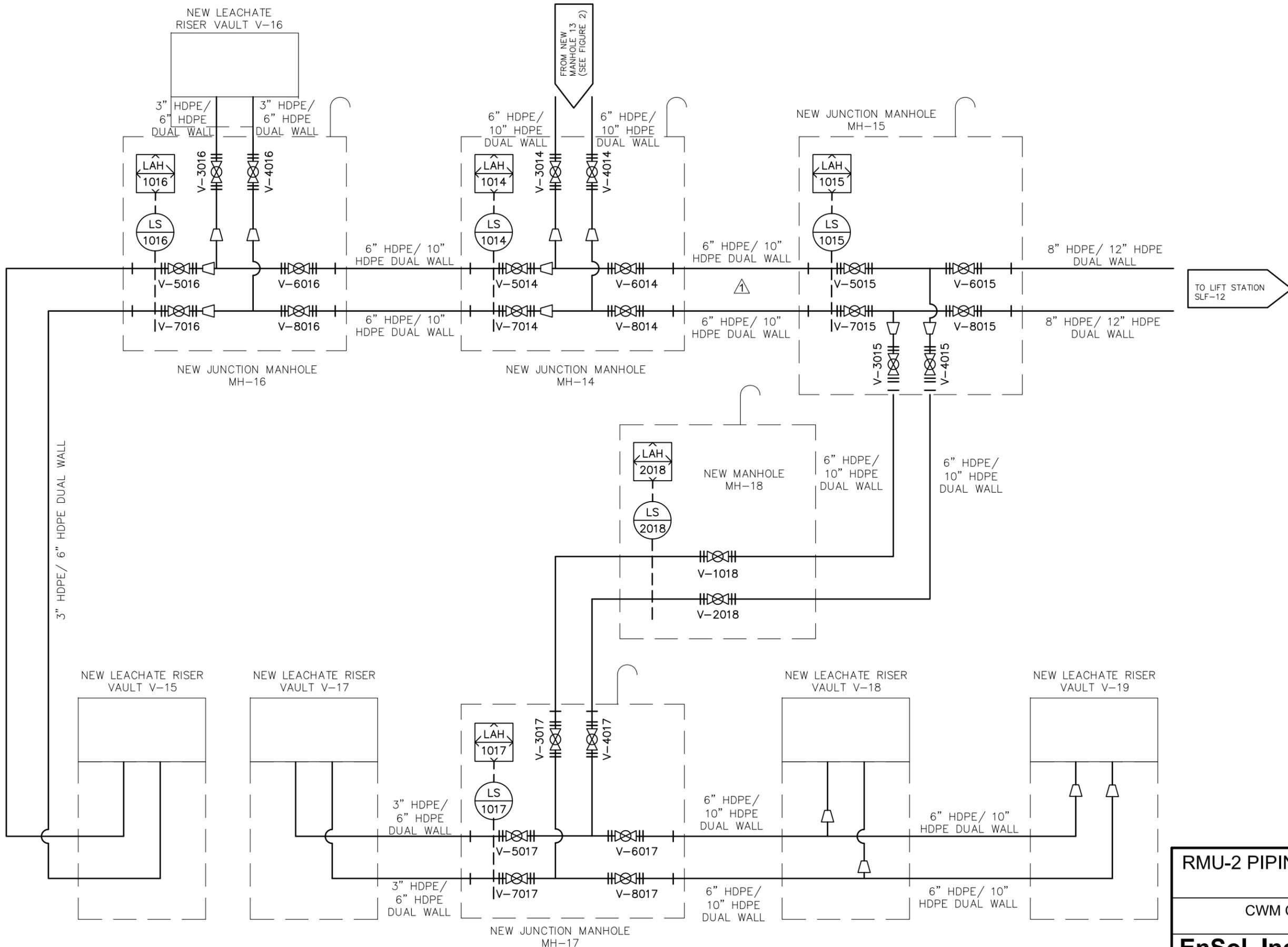


NOTES:  
 1. THIS DRAWING REPRESENTS THE P&ID AFTER RMU-1 LIFT STATION CLOSURE

<b>RMU-1 PIPING AND INSTRUMENTATION DIAGRAM</b>	
CWM CHEMICAL SERVICES, LLC MODEL CITY, STATE OF NEWYORK	
<b>EnSol, Inc.</b> Environmental Solutions	661 MAIN STREET NIAGARA FALLS, NY 14301 PHONE (716) 285-3920 FAX (716) 285-3928
MAY 2013	PN: 13-7017

**FIGURE 2**

X:\AAAgj\CWM\13-7017 RMU-2 Permit P & ID Drawing Updates (Task 3)\ACAD\F02\_13-7017 RMU-2 PIPING AND INSTRUMENTATION DIAGRAM.dwg, 5/24/2013 1:48:45 PM



X:\AAApj\CWM\13-7017 RMU-2 PIPING AND INSTRUMENTATION DIAGRAM rev1.dwg, 10/4/2013 1:54:55 PM, avelington

3" HDPE/ 6" HDPE DUAL WALL

<b>RMU-2 PIPING AND INSTRUMENTATION DIAGRAM</b>	
CWM CHEMICAL SERVICES, LLC <small>MODEL CITY, STATE OF NEW YORK</small>	
<b>EnSol, Inc.</b> Environmental Solutions	<small>661 MAIN STREET NIAGARA FALLS, NY 14301 PHONE (716) 285-3920 FAX (716) 285-3928</small>
MAY 2013	PN: 13-7017

REVISIONS	BY	DATE
CHANGED SECTION OF PIPE FROM 8/12 DUAL WALLED TO 6/10 DUAL WALLED	TAS	10/1/13