

Steve Pullen

From: Patrick.G.Corser@us.mwhglobal.com
Sent: Wednesday, March 27, 2002 2:04 PM
To: Steve Pullen
Cc: Diane.L.Dwire@us.mwhglobal.com
Subject: Closure Cost Stuff for Dave Cobrain



Steve,

I do not have Dave's e-mail address and have not been able to contact him by phone. Could you forward or print this out for Dave prior to the conference call today.

Thanks,

Pat

Dave,

Attached is an updated closure cost estimate. This has been updated to generally match NMED's cost estimate as recommended by the Hearing Officer. The following information addresses the other questions raised by the Secretary. I am faxing the handbook pages and spread-sheet that supports the unit cost comparison. The entire closure cost estimate is too large to fax. Let me know if you have any trouble opening the files.

Regards,

Pat

1. Closure Costs

- Water
 - The GMI closure cost estimate has been revised (increased) to match the total amount recommended by the Hearing Officer. This estimate includes detailed unit rates for all closure activities. In addition, it included costs for water usage during construction and revegetation and for maintenance of the cover during the post-closure care period (\$30,000 per year for 30 years ? total of \$900,000)
 - The water requirements for closure were based on estimates from local revegetation specialists that estimated approximately \$2000/acre for water. We utilized almost twice that number in the estimate.
 - Water costs are included in the earthworks for backfilling, which is expected to be the major demand for water.
- Cost Estimating Handbook
 - A check using Cost estimating handbooks (CRG and Caterpillar production program) were used for the major earthworks items in the closure costs
 - This includes the backfilling for the landfill during closure and clean soil backfilling for other facilities. Also

includes major components of the cover placement

- The handbook estimated backfill direct costs at \$1.12 to 1.28/cy. This compares to the GMI estimate of \$1.46/cy. These numbers do not include the 25% for indirect costs and 10% for NMED supervision.

- Conclusion: The unit rates used in the cost estimate are conservative for the major earthworks components.

- Erosion Control and Revegetation

- The type and density of vegetation was assumed in the erosion calculations (60% cover)

- The drainage structures are also specified in the design drawings and specifications.

- The top surface slopes are sufficient flat (6%) that contour ditches are not required. The access road ditches are sufficient to handle any runoff.

- The calculation of erosion of topsoil was based on the vegetation density of (60% cover).

- The topsoil removed from the footprint of the facilities will be used for the final cover

- Water needs and costs are discussed above

- Maintenance of the cover is included in the post-closure cost estimate. This includes approximately \$30,000 per year for maintenance (re-seeding and erosion repair). Over the 30 year period this totals approximately \$900,000.

Seed Mix

Upon closure Gandy will work with the locale soil conservation service to develop a seed mixture which will consist of both locale types of vegetation along with good cover types of vegetation.

Vegetation Density

According to the sediment demonstration for the final cover, a 60% herbaceous cover (which includes litter) is required to keep erosion down to 2 tons/acre/year.

Final Drainage Channels

Channels 1, 2, 3, 4, and 5 will remain as permanent channels. The locations and designs for the channels are shown on Drawing 25 and 26.

Topsoil

Upon closure Gandy will use the topsoil which was striped and stockpiled prior to construction of the site. At that time, the topsoil will be tested and according to the test result appropriate soil amendments will be determined and added.

(See attached file: Closure Cost Estimate with sampling at 2000 sq ft 29-Sept-2001 Revisions to Address NMED Order Rev 3.xls) (See attached file: Handbook Unit Cost Comparison.xls)

FLEET1 / Backfill: Cost Summary							
	Qty	Model	Machine Code	Hourly Cost Each Unit	Operating Hours	\$ Total	\$ per BCY
Loaders:	0			0	0	0	0
Haulers:	4	637E	C134	228.97	8,166	1,869,852	0.908
Totals	4				8,166	1,869,852	0.908
Support:	1	Motor Grader 16H		105.64	2,042	215,674	0.105
	1	Water Truck		172.10	2,042	351,358	0.171
	1	Dozer D7		94.47	2,042	192,869	0.094
Totals	3				6,125	759,901	0.369
Fleet Totals	7				14,291	2,629,753	\$ 1.28
FLEET1 / Backfill: Production and Cost							
Operator Efficiency (%)	86.66						
	4 637E						
BCY/Load (3510 lbs/BCY):	21.37						
Hauler Payload in Tons	37.5						
Load Time (Min)	1						
HAULER CYCLE TIMES							
Load with Exchange	1						
Haul	1.28						
Dump and Maneuver	0.6						
Return	1.53						
Potential Cycle Time	4.4						
Wait on Slow Hauler	0						
Wait to Load, Bunching AVG	0						
Total Cycle Time	4.4						
POTENTIAL PRODUCTION							
BCY per Hour	1,164.30						
Avg mph	12.9						
Fleet Availability (%)	83						
BCY per Sched Hr	837.48						
Total BCY	2,060,000.00						
Sched Hrs Required	2,459.75						
Total \$	2,629,753.13						
\$ per BCY	\$ 1.28						

FLEET1 / Cover: Cost Summary							
	Qty	Model	Machine Code	Hourly Cost Each Unit	Operating Hours	\$ Total	\$ per BCY
Loaders:	0			0	0	0	0
Haulers:	4	637E	C134	228.97	477	109,269	0.794
Totals	4				477	109,269	0.794
Support:	1	Motor Grader 16H		105.64	119	12,603	0.092
	1	Water Truck		172.10	119	20,532	0.149
	1	Dozer D7		94.47	119	11,271	0.082
Totals	3				358	44,407	0.323
Fleet Totals	7				835	153,676	\$ 1.12
FLEET1 / Cover: Production and Cost							
Operator Efficiency (%)	83						
	4 637E						
BCY/Load (3510 lbs/BCY):	21.37						
Hauler Payload in Tons	37.5						
Load Time (Min)	1						
HAULER CYCLE TIMES							
Load with Exchange	1						
Haul	1.19						
Dump and Maneuver	0.6						
Return	0.9						
Potential Cycle Time	3.69						
Wait on Slow Hauler	0						
Wait to Load, Bunching AVG	0						
Total Cycle Time	3.69						
POTENTIAL PRODUCTION							
BCY per Hour	1,390.08						
Avg mph	9.86						
Fleet Availability (%)	83						
BCY per Sched Hr	957.57						
Total BCY	137,642.00						
Sched Hrs Required	143.74						
Total \$	153,675.73						
\$ per BCY	\$ 1.12						

SITE CLOSURE COST ESTIMATE		Permit Application (Rounded) (\$)	Current Cost (Calculated) (\$)	HWB Costs (Draft Permit) (\$)	Comments on difference between CC and HWB
DRUM HANDLING UNIT					
\$0	Stabilization and Disposal of Remaining Drum Waste Inventory	\$36,071	\$36,071	\$36,071	
-\$60	Decontamination of Equipment and Buildings	\$7,200	\$7,260	\$7,200	
\$0	Stabilization and Disposal of Decontamination Water	\$14,630	\$14,630	\$14,630	
-\$6	Chemical Testing of Decontamination Water	\$2,040	\$2,046	\$2,040	Assume all water goes in 1 tank which will be sampled.
\$1,579	Dismantling and Moving Structure and Equipment	\$22,196	\$22,196	\$23,775	Buildings to be demolished and landfilled, not salvaged and sold
-\$41,843	Dismantling and Disposal of Concrete Floor and Secondary Containment	\$123,310	\$164,413	\$122,570	Assumes concrete breaker at \$45/cy and disposal at \$8/cy
-\$408	Soil Sampling and Chemical Analysis	\$138,720	\$139,128	\$138,720	
\$0	Excavation of Contaminated Soils	\$7,307	\$7,307	\$7,307	
\$15,930	Disposal of Contaminated Soil	\$0		\$15,930	HWB assumes \$9/cy for nonhazardous material and 10% hazardous at \$30/cy. MW assumed disposal in the landfill prior to closure of the landfill. No costs were included for disposal in onsite landfill.
\$0	Earth Backfill for Excavated Contaminated Soils	\$1,827	\$1,827	\$1,827	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$21,052	Revegetation	\$22,876	\$22,892	\$1,840	Revegetation based on \$10,800/acre (see detail sheet)
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$7,900	Certification of Closure Report	\$15,000	\$12,100	\$20,000	MWH costs based on experience with actual implementation of inspections and reports
-\$37,381	Subtotal	\$394,176	\$432,291	\$394,910	
EVAPORATION POND UNIT					
\$0	Stabilization and Disposal of Remaining Liquid Waste Inventory	\$342,954	\$342,954	\$342,952	
-\$2	Decontamination of Equipment	\$240	\$242	\$240	
\$0	Stabilization and Disposal of Decontamination Water	\$7,315	\$7,315	\$7,315	
-\$6	Chemical Testing of Decontamination Water	\$2,040	\$2,046	\$2,040	Assume all water goes in 1 tank which will be sampled.
-\$31,736	Removal and Disposal of Liner and Leachate Collection System	\$88,144	\$131,616	\$99,880	
-\$378	Soil Sampling and Chemical Analysis	\$128,520	\$128,898	\$128,520	
\$4,355	Excavation of Contaminated Soils	\$13,664	\$13,664	\$18,019	
\$37,790	Disposal of Contaminated Soil	\$0		\$37,790	See above
\$3,415	Earth Backfill for Excavated Contaminated Soils	\$3,416	\$3,417	\$6,832	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$21,664	Revegetation	\$23,520	\$23,537	\$1,873	
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$7,900	Certification of Closure Report	\$15,000	\$12,100	\$20,000	MWH costs based on experience with actual implementation of inspections and reports
\$252	Subtotal	\$627,813	\$668,209	\$668,461	
\$0					

		Permit	Current	HWB	
	SITE CLOSURE COST ESTIMATE	Application	Cost	Costs	Comments on difference between CC and HWB
		(Rounded)	(Calculated)	(Draft Permit)	
		(\$)	(\$)	(\$)	
\$0	LIQUID WASTE RECEIVING AND STORAGE UNIT				
\$0	Stabilization and Disposal of Remaining Waste Inventory	\$105,336	\$105,336	\$105,336	
-\$20	Decontamination of Equipment and Buildings	\$2,400	\$2,420	\$2,400	
-\$6	Chemical Testing of Decontamination Water	\$2,040	\$2,046	\$2,040	Assume all water goes in 1 tank which will be sampled.
\$0	Stabilization and Disposal of Decontamination Water	\$14,630	\$14,630	\$14,630	
-\$1,633	Removal and Disposal of Tanks and Concrete Pad	\$14,605	\$16,238	\$14,605	
-\$180	Soil Sampling and Chemical Analysis	\$61,200	\$61,380	\$61,200	
\$0	Excavation of Contaminated Soils	\$436	\$436	\$436	
\$967	Disposal of Contaminated Soil	\$0		\$967	See above
\$109	Earth Backfill for Excavated Contaminated Soils	\$109	\$109	\$218	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$1	Revegetation	\$731	\$732	\$731	See above
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$2,900	Certification of Closure Report	\$15,000	\$12,100	\$15,000	MWH costs based on experience with actual implementation of inspections and reports
\$2,716	Subtotal	\$219,487	\$217,847	\$220,563	
\$0	STABILIZATION UNIT				
\$0	Stabilization and Disposal of Remaining Waste Inventory	\$21,024	\$21,024	\$21,024	Stabilization unit waste does not have free liquids which is why a mixing ratio of 1.6 reagent to 1 waste is used. Waste density increased to 100 pcf.
-\$38	Decontamination of Equipment and Buildings	\$4,560	\$4,598	\$4,560	
-\$6	Chemical Testing of Decontamination Water	\$2,040	\$2,046	\$2,040	Assume all water goes in 1 tank which will be sampled.
\$0	Stabilization and Disposal of Decontamination Water	\$14,630	\$14,630	\$14,630	
\$1,683	Dismantling and Salvaging Tanks, Ancillary Equipment, and Building	\$23,222	\$23,222	\$24,905	Buildings to be demolished and landfilled, not salvaged and sold
\$10,127	Removal and Disposal of Equipment and Concrete Pad	\$34,590	\$47,853	\$57,980	Assumes concrete breaker at \$45/cy, tanks are crushed and put in landfill not rinsed and resold
\$8,064	Soil Sampling and Chemical Analysis	\$32,640	\$32,736	\$40,800	16 samples total, 8 extra samples added for bins see soil sampling spreadsheet
\$0	Excavation of Contaminated Soils	\$2,150	\$2,150	\$2,150	
\$4,766	Disposal of Contaminated Soil	\$0		\$4,766	See above
\$538	Earth Backfill for Excavated Contaminated Soils	\$538	\$538	\$1,076	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$4,660	Revegetation	\$6,119	\$6,124	\$1,464	See above
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$2,900	Certification of Closure Report	\$15,000	\$12,100	\$15,000	MWH costs based on experience with actual implementation of inspections and reports
\$23,953	Subtotal	\$159,514	\$169,442	\$193,395	
\$0					

		Permit	Current	HWB	
	SITE CLOSURE COST ESTIMATE	Application	Cost	Costs	Comments on difference between CC and HWB
		(Rounded)	(Calculated)	(Draft Permit)	
		(\$)	(\$)	(\$)	
\$0	ROLL-OFF STORAGE AREA UNIT				
-\$50	Stabilization and Disposal of Remaining Waste Inventory	\$832,550	\$832,550	\$832,500	Waste density increased from 90 pcf to 100 pcf
\$0	Decontamination of Equipment	\$0	\$0	\$0	No equipment
\$0	Chemical Testing of Decontamination Water	\$0	\$0	\$0	No decontamination will be completed.
\$0	Stabilization and Disposal of Decontamination Water	\$0	\$0	\$0	No decontamination will be completed.
-\$16,192	Demolition and Disposal of Liner System	\$80,960	\$121,440	\$105,248	Berms and truck access ramps are not disposed in landfill this material will be used as backfill to regrade the site to its original contours.
-\$426	Soil Sampling and Chemical Analysis	\$144,840	\$145,266	\$144,840	
\$1,113	Excavation of Contaminated Soils	\$20,240	\$20,240	\$21,353	
\$44,781	Disposal of Contaminated Soil	\$0	\$0	\$44,781	See above
\$5,058	Earth Backfill for Excavated Contaminated Soils	\$5,060	\$5,062	\$10,120	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$35,803	Revegetation	\$38,507	\$38,536	\$2,733	See above
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$2,900	Certification of Closure Report	\$15,000	\$12,100	\$15,000	MWH costs based on experience with actual implementation of inspections and reports
\$1,961	Subtotal	\$1,140,158	\$1,177,614	\$1,179,575	
\$0	TRUCK WASH UNIT				
\$0	Stabilization and Disposal of Remaining Waste Inventory	\$5,270	\$5,270	\$5,270	
-\$6	Chemical Testing of Decontamination Water	\$2,040	\$2,046	\$2,040	Assume all water goes in 1 tank which will be sampled.
\$0	Decontamination of Equipment	\$0	\$0	\$0	Nothing worth deconning. All equipment will be crushed with dozer and landfilled.
\$0	Stabilization and Disposal of Decontamination Water	\$0	\$0	\$0	No decontamination will be completed.
\$962	Demolition and Disposal of Tanks, Concrete and Liner System	\$12,321	\$15,807	\$16,769	
\$4,032	Soil Sampling and Chemical Analysis	\$16,320	\$16,368	\$20,400	
-\$428	Excavation of Contaminated Soils	\$713	\$713	\$285	
\$598	Disposal of Contaminated Soil	\$0	\$0	\$598	See above
\$0	Earth Backfill for Excavated Contaminated Soils	\$178	\$178	\$178	HWB and MW agree on \$2/cy for nonhazardous backfill
-\$1,494	Revegetation	\$1,592	\$1,593	\$99	See above
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
-\$7,100	Certification of Closure Report	\$5,000	\$12,100	\$5,000	MWH costs based on experience with actual implementation of inspections and reports
-\$2,857	Subtotal	\$46,435	\$56,496	\$53,639	
\$0					
\$0					
\$0	LANDFILL UNIT				
\$0	Landfill Closure				
-\$1,288	Landfill Excavation Backfill	\$4,120,000	\$4,121,288	\$4,120,000	HWB and MW agree on \$2/cy for nonhazardous backfill
\$168	Landfill Cover	\$2,372,508	\$3,374,264	\$3,374,432	HWB cost appear to be too high. No basis for costs provided. See MW detailed worksheet
\$0	Demolition and Disposal of Tanks, Concrete and Liner System	\$2,426	\$2,426	\$2,426	
\$0	Leachate Treatment Facility Construction	\$0	\$0	\$0	Note 1
\$0	Leachate Treatment Facility Operations	\$0	\$0	\$0	Note 1
-\$1,073	Leachate pumping and treatment	\$79,826	\$99,094	\$98,021	Treatment costs for leachate after closure of stabilization unit. Leachate to be shipped off site
-\$184	Sump Vadose Zone Sampling and Analysis	\$8,000	\$8,184	\$8,000	
\$7,080	Well Vadose Zone Monitoring System Sampling and Analysis	\$40,000	\$40,920	\$48,000	HWB cost too high. No basis for costs provided.
-\$306	Soil Sampling and Analysis	\$104,040	\$104,346	\$104,040	
\$0	Final Plat Survey	\$2,400	\$2,400	\$2,400	
\$580	Certification of Closure Inspection	\$3,000	\$2,420	\$3,000	MWH costs based on experience with actual implementation of inspections and reports
\$2,900	Certification of Closure Report	\$15,000	\$12,100	\$15,000	MWH costs based on experience with actual implementation of inspections and reports
\$7,878	Subtotal	\$6,747,200	\$7,767,441	\$7,775,319	Note 1
\$0					
-\$620	Total Closure Cost (all units)	\$9,288,347	\$10,432,843	\$10,432,223	

	SITE CLOSURE COST ESTIMATE	Permit Application (Rounded) (\$)	Current Cost (Calculated) (\$)	HWB Costs (Draft Permit) (\$)	Comments on difference between CC and HWB
\$0					
\$0					
\$0	Landfill Post-Closure				
\$0	Facility Inspection	\$201,600	\$201,600	\$201,600	
\$0	Routine Landfill Cover Maintenance and Repair	\$600,000	\$600,000	\$600,000	
\$0	Severe Landfill Cover Erosion Damage Repair	\$300,000	\$300,000	\$300,000	
\$0	Perimeter Diversion Ditch Maintenance and Repair	\$300,000	\$300,000	\$300,000	
-\$698	Leachate Pumping and Treatment	\$239,476	\$297,280	\$296,582	Note 1
\$0	Leachate Collection System Maintenance	\$67,200	\$67,200	\$67,200	Note 1
\$0	Well and Sump Vadose Zone Maintenance	\$67,200	\$67,200	\$67,200	
-\$5,520	Sump Vadose Zone Sampling and Analysis	\$240,000	\$245,520	\$240,000	
\$0	Vadose Zone Monitoring Wells Sampling and Analysis	\$1,440,000	\$1,440,000	\$1,440,000	
\$0	Notation of Property Deed	\$2,500	\$2,500	\$2,500	
\$3,000	Certification of Post-Closure Inspection	\$3,000	\$0	\$3,000	
\$1,600	Certification of Post-Closure Report	\$150,000	\$158,400	\$160,000	Annual reports for 30 years
-\$1,618	Subtotal	\$3,610,976	\$3,679,700	\$3,678,082	Note 1
\$0					
\$0					
-\$2,238	Total Closure Cost + Post-Closure Costs	\$12,899,323	\$14,112,543	\$14,110,305	Note 1
	1) We have assumed that leachate generated after closure will be treated off site				
				-\$2,238	Different between CC and HWB costs