Mary River Marginal Cost Breakdown (Comparing Previous Estimate)

Version 2.0

Wednesday, April 03, 2013

Area	Component	Activity	13-Mar-13 Total Cost	Revised Total Cost	% Allocation	13-Mar-13 Cost Associated with 2013	Revised Cost Associated with 2013	Water Liability	Land Liability	Difference	Previous Cost Associated 2013
Mary River											
Open Pit	Inspection of Quarries	Carry out	$33,333	$0	100%	$33,333	$0		$0	($33,333)	2013 Marginal Closure Cost does not include a stability inspection at project quarries as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $55,000, with $5,500 as contingency. The stability inspection is described as geotechnical monitoring of permitted & road side borrow area reclamation, and it assumes a geotechnical inspection in Year 2 to further develop 'post completion of EBA recommendations' and in subsequent year to confirm feature stability.
	Berm at crest	Install							$0	$0	
	Signs	Place							$0	$0	
	Demolition scrap	Dump							$0	$0	
		Place overburden	$338,748	$338,748	100%	$338,748	$338,748		$338,748	$0	No change has been made since last revision Covers cost of placing overburden over all buildings brought on site as part of the 2013 Work Plan and as listed on Master Building Matrix (H349000-1000-00-144-0001).
	Spillway	Excavate							$0	$0	
	Quarries	Site contouring	$303,636	$0	100%	$303,636	$0		$0	($303,636)	2013 Marginal Closure Cost does not include a cost associated with quarries as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. AMEC has considered 2 quarries at Milne Inlet and the Mine Site proposed being used in 2013 (See appendix G3 Borrow & Quarry Areas tab). Specifically, the estimate considers the following remedial items: - Grade and contour primary borrow sites at Milne Inlet, Mary River, Midrail and quarry, with a total of $159,120, and a contingency of $23,868. - Grade and contour road side borrow areas within alignment, with a total of $220,116, and a contingency of $66,035. - Borrow materials from permitted borrow areas, with a total of $47,350, and a contingency of $9,470. Note that Quarries will be expanded during 2013. The 2013 Marginal Closure Cost assumes that AMEC model allows for cost of all required reclamation at Quarries needed for 2013.
		Place overburden	$67,800	$0	100%	$67,800	$0		$0	($67,800)	
	Access roads	Scarify								$0	
Rock Pile	Inspection	Carry out								$0	
	Flat surface	Scarify								$0	
Buildings	Fuel storage & foundations	Decommissioning	$503,707	$503,681	50%	$251,854	$251,840		$251,840	($27)	2013 A&R Plan (AMEC, January 2013) closure cost estimate considers fuel storage at Mary River. The Mary River Fuel Farm includes 1.5 million L (11x114,000 L bladders in lined containment; a double walled 75,000 L in lined containment) (See appendix G3 Fuel Storage Facilities, cells 1-7). Specifically, the cost is listed as $256,648 with $46,234 as contingency. AMEC Closure estimate consider the following remedial activities: - Return excess fuel at Mary River to Milne Inlet (total cost of $88,524, with $8,852 as contingency); - Drain, fold, and containerize Mary River bladder tanks (total cost of $38,376, with $3,838 as contingency); - Execute civil works to transport potential hydrocarbon contaminated soil form the Mary River bulk fuel farm to the Milne Inlet land farm (total cost of $15,340, with $1,534 as contingency); - Execute civil works to transport potential hydrocarbon contaminated soil from Mary River non-bulk fuel farm lined containment areas to the Milne Inlet land farm (total cost of $88,524, with $8,852 as contingency); - Recontour surface (total cost of $6,564, with $656 as contingency); 2013 Marginal Closure Cost includes a cost for site contouring of the additional 4 x 500,000 L diesel tanks located at the Mine Site. Based on preliminary fuel farm design, the footprint for the Mine Site dike is 2,962 m2. It is assumed that strictly the footprints of the aboveground fuel tanks would require active reclamation and not the entire fuel storage site. Therefore it is estimated that this is 75% of the fuel storage site area will need to be applied a unit cost for reclamation in the RECLAIM model.
	Camp & foundations	Decommissioning	$1,423,051	$940,474	50%	$711,526	$470,237		$470,237	($482,578)	2013 Marginal Closure Cost includes an allowance for reclaiming the all buildings (offices/warehouse/accommodation complex) included in the Master Building Matrix (H349000-1000-00-144-0001) for the Mine Site that would not have the potential for contamination. Master Building Matrix only covers buildings new for 2013 Work Plan. Accommodation complex sizing is based on the most conservative (largest footprint) proposal based on camp supplier bid documentation. The unit cost applied in the RECLAIM Model considers the teardown of steel buildings, with an associated cost of 57.02$/m2
	Fuel and camp	Site contouring	$130,022	$130,013	50%	$65,011	$65,006		$65,006	($10)	2013 Marginal Closure Cost includes a cost for site contouring of the additional 4 x 500,000L diesel tanks located at the Mine Site. Based on email "installation of new fuel Tanks on Project ERP (Dyke foot print)", the footprint for the Mary River dike is 2,962 m2. It is assumed that strictly the footprints of the aboveground fuel tanks would require active reclamation and not the entire fuel storage site. Therefore it is estimated that this is 75% of the fuel storage site area will need to be applied a unit cost for reclamation in the RECLAIM model.
	Other contaminated buildings	Remove	$285,400	$6,000	50%	$142,700	$3,000		$3,000	($279,400)	2013 Marginal Closure Cost includes cost allocation for reclaiming the following infrastructure (contaminated buildings): -Power Plant -Maintenance Shop Footprint based on Master Building Matrix (H349000-1000-00-144-0001) that only covers buildings new for 2013 Work Plan. Main change was in miscalculation in the original estimate. Footprint of entire fuel storage facility was included under this unit cost.
	Other non-contaminated buildings	Remove	$377,476	$193,368	50%	$188,738	$96,684		$96,684	($184,108)	2013 Marginal Closure Cost includes cost allocation for reclaiming the following infrastructure (other non-contaminated buildings): - Water treatment Plant; - Additional Bulk fuel storage; - Consolidate & dump boneyard debris; - Airstrip Extension. The area footprint have been based on the Master Building Matrix, which considers only new facilities during 2013. However, existing bulk fuel Storage has been accounted in 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $38,376, with $3,838 as contingency.
	Break Basement Slabs	Remove	$129,587	$129,587	50%	$64,794	$64,794		$64,794	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocation for reclaiming the following infrastructure by break of basement of slabs: - Water treatment Plant; - Maintenance Shop; - Power Plant; - Additional bulk fuel storage; - Consolidate & dump boneyard debris; - Airstrip/Apron Extension. The area footprint has been estimated based available design and on Master Building Matrix (H349000-1000-00-144-0001) that only covers buildings new for 2013 Work Plan.
	All buildings	Site contouring	$46,861	$46,861	50%	$23,430	$23,430		$23,430	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocation for reclaiming the following infrastructure by site contouring: - Water treatment Plant; - Maintenance Shop; - Power Plant; - Bulk fuel storage; - Consolidate & dump boneyard debris; - Airstrip/Apron Extension. The area footprint has been estimated based on Master Building Matrix (H349000-1000-00-144-0001) that only covers buildings new for 2013 Work Plan.
Road	Road	Remove Culverts	$13,219	$0	50%	$6,610	$0		$0	($13,219)	2013 Marginal Closure Cost does not include any cost associated with reclamation of roads (such as remove culverts and Fill with cobble & grade) as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $2,086,590 with $5389,217 as contingency, including the following roads and associated activities: - #1 Deposit Haul Roads - Inspect and repair any erosion and/or permafrost damage, stabilize inside ditches with cobble, Remove round culverts, install water bars and stabilize water crossings, Install safety berms, and Re-grade pad & repair any erosion; - Milne Inlet Tote Road - Inspect and repair any erosion and/or permafrost damage, Remove all box culverts crossing and stabilize slopes, install water bars, and Remove round culverts. - General access Roads - Grade and contour road surfaces and remove culverts. No additional cost for reclamation has been included for culverts in RECLAIM. NOTE: In some circumstances, culverts may be replaced with larger culverts. It has been assumed that cost of reclamation would be the same and is covered in the 2013 A&R Plan (AMEC, January 2013).
		Fill with cobble & grade	$41,550	$41,550	50%	$20,775	$20,775		$20,775	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocation for the reclamation of parking laydown areas by scarifying and installing water breaks. Assume required parking and laydown area at Mary River = 60702.8 m2. Assumption based on conservative estimate of 15 acres (6.07 hectares) needed at Mine Site (estimated value based volume of required equipment and materials). Assume all laydown areas and parking areas have the same unit cost as road reclamation.
Landfill	Soil	Place cover	$374,252	$0	100%	$374,252	$0		$0	($374,252)	2013 Marginal Closure Cost does not include applying a cover of the Mine Site Landfill as this is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $140,556, with another $21,083 as contingency. The landfill cover is described as 1.5 m thick of sand and gravel to keep the landfill in permafrost (assumes the upper 1 m will be an active freeze/thaw area). The plan and cost estimate also assume $84,864 (+$25,459 contingency) to expand the berm system around the landfill. The cost of landfill operation during closure is $71,604 (+$10,741 contingency).
Specialize Items	Construction Materials	Sealift	$0	$0	50%	$0	$0		$0	$0	
Manpower										$0	
Milne Inlet											
Stockpile	Cover Dump	Overburden cover	$1,262,250	$0	100%	$1,262,250	$0		$0	($1,262,250)	2013 Marginal Closure Cost does not include the cost of covering the Milne Inlet Stockpiles as this cost is allocated in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $182,256, with $18,253 as contingency. The reclamation of the Milne Inlet Stockpile has been described as Grade residual ore stockpiles at Milne Inlet (Lump stockpile is 2900 cubes and fines 1060. Dozer the stockpiles across pad area will increase pad height by 0.44m and the maximum height of pad will be 2.44 meters), and haul and place cover on ore pad area at Milne Inlet (Specify Cover thickness of 0.5 m, and the approximate footprint of Milne Inlet Stockpile 68,500 m2 , with 2H:1V slopes and an approximate surface area of 76,500 m2)
Buildings	Fuel storage & foundations	Decommissioning	$5,106,553	$3,803,298	50%	$2,553,277	$1,901,649		$1,901,649	($1,303,255)	2013 A&R Plan (AMEC, January 2013) closure cost estimate considers fuel storage at Milne. The Milne Inlet Fuel Farm includes 5 ML in a lined containment facility, and 8.25 ML (73x114,000 L bladders in lined containment facility). Specifically, the cost is listed as $444,397 with $94,238 as contingency. AMEC Closure estimate consider the following remedial activities: - Milne Inlet fuel farm Oil Water Separation Operation (total cost of $199,280, with $59,784 as contingency); - Drain, flush and dismantle and remove 5 ML fuel storage tank (total cost of $130,141, with $6,028 as contingency); - Recontour surface impacted by 5 ML fuel storage tank (total cost of $5,568, with $835 as contingency); - Drain, fold, and containerize Milne bladder tanks (total cost of $44,704, with $4,470 as contingency); - Remove Piping associated with fuel farm and 5 ML fuel tank (total cost of $9,636, with $964 as contingency); - Remove Piping from 5 ML Fuel Storage Tank (total cost of $4,818 with $964 as contingency); - Re-grading pipeline area (total cost of $5,020 with $1,004 as contingency); - Remove all hazardous material/fuel storage geomembrane fuel liners and package for sea (total cost of $11,424 with $1,142 as contingency); - Execute civil works to convert the fuel farm to hydrocarbon impacted soil land farm (total cost of $54,432 with $16,330 as contingency); - Execute civil works to transport potential hydrocarbon contaminated soil from Milne Inlet non - bulk fuel farm lined containment areas (total cost of $34,740 with $10,422 as contingency); - Recontour surface (total cost of $26,520 with $2,562 as contingency); 2013 Marginal Closure Cost includes a cost for additional 1x5 ML tank, and 3x10 ML and 1x0.75 ML tank. Based on email "installation of new fuel Tanks on Project ERP (Dyke foot print)", the footprint for the Milne dike was scaled resulting in an area of 22,366 m2. It is assumed that strictly the footprints of the aboveground fuel tanks would require active reclamation and not the entire fuel storage site. Therefore it is estimated that this is 75% of the fuel storage site area will need to be applied a unit cost for reclamation in the RECLAIM model.
	Camp & foundations	Decommissioning	$1,178,209	$778,661	50%	$589,104	$389,330		$389,330	($399,548)	2013 Marginal Closure Cost includes an allowance for reclaiming the all buildings (offices/warehouse/accommodation complex) included in the Master Building Matrix (H349000-1000-00-144-0001) for the Milne Inlet that are not classified as contaminated. Master Building Matrix only covers buildings new for 2013 Work Plan. Accommodation complex sizing is based on the most conservative (largest footprint) proposal based on camp supplier bid documentation. The unit cost applied in the RECLAIM Model considers the teardown of steel buildings, with an associated cost of 57.02$/m2. Difference associated with change in unit cost.
	Fuel and camp	Site contouring	$307,577	$252,008	50%	$153,788	$126,004		$126,004	($55,569)	2013 Marginal Closure Cost includes a cost for site contouring of the additional 1x5 ML tank, and 3x10 ML and 1x0.75 ML tank area. Based on email "installation of new fuel Tanks on Project ERP (Dyke foot print)", the footprint for the Milne dike was scaled resulting in an area of 22,366 m2. It is assumed that strictly the footprints of the aboveground fuel tanks would require active reclamation and not the entire fuel storage site. Therefore it is estimated that this is 75% of the fuel storage site area will need to be applied a unit cost for reclamation in the RECLAIM model. Change due to 2013 Marginal Closure cost not including allocation for current fuel storage on site as this is covered in the 2013 A&R Plan (AMEC, January 2013)
	Other contaminated buildings	Remove	$80,400	$80,400	50%	$40,200	$40,200		$40,200	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocated with reclaiming the footprint of the following buildings (other contaminated buildings): - Water treatment Plant; - Maintenance Shop (footprint includes the footprint in Tote Road camp); - Power Plant; - Bulk fuel storage; - Consolidate & dump boneyard debris; - Airstrip Extension. The area footprint has been estimated based on Master Building Matrix (H349000-1000-00-144-0001) that only covers buildings new for 2013 Work Plan.

	Other non-contaminated buildings	Remove	$372,704	$187,039	50%	$186,352	$93,519		$93,519	($185,665)	2013 Marginal Closure Cost includes an allocation for reclaiming the following infrastructure (other non-contaminated buildings cost): - Water treatment Plant; - Consolidate & dump boneyard debris; - Airstrip Extension. The area footprint have been based on the Master Building Matrix (H349000-1000-00-144-0001), which only covers buildings new for 2013 Work Plan. However, Bulk Fuel Storage at Milne Inlet has been accounted in 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $44,704, with $4,470 as contingency.
	Break Basement Slabs	Remove	$98,420	$98,420	50%	$49,210	$49,210		$49,210	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocated with reclaiming the footprint of the following buildings (break of basement of slabs): - Water treatment Plant; - Maintenance Shop (footprint includes the footprint in Tote Road camp); - Power Plant; - Bulk fuel storage; - Consolidate & dump boneyard debris; - Airstrip Extension. The area footprint has been estimated based on Master Building Matrix (H349000-1000-00-144-0001) that only covers buildings new for 2013 Work Plan.
	All buildings	Site contouring	$35,590	$35,590	50%	$17,795	$17,795		$17,795	$0	No change since last revision. 2013 Marginal Closure Cost includes cost allocated with reclaiming the footprint of buildings listed in the Master Building Matrix (H349000-1000-00-144-0001) that only covers all buildings new for 2013 Work Plan.
Road	Road	Fill with cobble & grade	$10,617	$8,090	50%	$5,309	$4,045		$4,045	($2,527)	2013 Marginal Closure Cost does not include any cost associated with reclamation of roads (such as remove culverts and Fill with cobble & grade) as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $2,086,590 with $5389,217 as contingency, including the following roads and associated activities: - #1 Deposit Haul Roads - Inspect and repair any erosion and/or permafrost damage, stabilize inside ditches with cobble, Remove round culverts, install water bars and stabilize water crossings, Install safety berms, and Re-grade pad & repair any erosion; - Milne Inlet Tote Road - Inspect and repair any erosion and/or permafrost damage, Remove all box culverts crossing and stabilize slopes, install water bars, and Remove round culverts. - General access Roads - Grade and contour road surfaces and remove culverts. 2013 Marginal Closure Cost includes cost allocation for the reclamation of parking laydown areas by scarifying and installing water breaks. Assume required parking and laydown area at Milne Inlet = 8.09 ha. Assumption based on conservative estimate of 20 acres (8.09 hectares) needed at Milne based volume of required equipment and materials.
Landfill	Soil	Place cover				$0	$0		$0	$0	
Specialize Items	Construction Materials	Credit for bladder farm	($403,870)	$0	100%	($403,870)	$0		$0	$403,870	Increase. No longer applying credit Refer to Appendix G3, Fuel Storage Facilities tab (cells 9, 12-14, 16-20). Credit for RECLAIM modeling bladder farm was removed from RECLAIM model.
Manpower						$0	$0		$0	$0	
Tote Road Camp											
Buildings	Fuel storage & foundations	Decommissioning								$0	
	Camp & foundations	Decommissioning	$192,883	$127,474	50%	$96,442	$63,737		$63,737	($65,409)	2013 Marginal Closure Cost includes the area foot print of accommodation complex at Tote Road Camp based on Temporary Structure List developed by Hatch Construction Management Team. Maintenance shops have been removed from Tote Road camp. However, the footprint of the buildings have been incorporate into the Other contaminated buildings in Milne Inlet. The unit cost selected in the RECLAIM Model considers the teardown of steel buildings, with an associated cost of 57.02$/m2
	Fuel and camp	Site contouring		$0						$0	
	Other contaminated buildings	Remove	$516,800	$0	50%	$258,400	$0		$0	($516,800)	Maintenance shops have been removed from Tote Road camp. However, the footprint of the buildings have been incorporate into the 'Other contaminated buildings' in Milne Inlet.
	Other non-contaminated buildings	Remove		$0					$0	$0	
	Break Basement Slabs	Remove	$69,070	$0	50%	$34,535	$0		$0	($69,070)	Maintenance shops have been removed from Tote Road camp. However, the footprint of the buildings have been incorporate into the 'Other contaminated buildings' in Milne Inlet
	All buildings	Site contouring								$0	
Road	Road	Fill with cobble & grade								$0	
Landfill	Soil	Place cover								$0	
Specialize Items	Construction Materials	Sealift								$0	
Manpower										$0	
Chemicals											
Haz. Mat.	Hazardous material audits	Phase 1	$25,600	$0	100%	$25,600	$0		$0	($25,600)	2013 Marginal Closure Cost does not include a Phase I and Phase II hazardous material audit as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $90,000, with $27,000 as contingency. Phase I and phase II hazardous material audit is describe as a complete phase 1 to phase 3 environmental assessment to identify hydrocarbon contaminated soil and to develop soil remediation criteria and land farm design. It has been assumed that the Phase I to III will cover the scope of a left-on-site hazardous material audit.
		Phase 2	$100,000	$0	100%	$100,000	$0		$0	($100,000)	
Wastes	Waste oils	Remove	$51,282	$51,282	100%	$51,282	$51,282		$51,282	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for removing waste oil on site based on annual generation rates established in the Waste Management Plan for Construction, Operation, and Closure (H349000-1000-07-126-0007).
	Fuel - Type 1, e.g. diesel dregs	Remove	$454,410	$2,771,220	100%	$454,410	$2,771,220		$2,771,220	$2,316,810	The 2013 Work Plan Marginal Closure Cost estimate considers the worst case scenario to include the cost allocation for fuel removal, i.e., highest quantity of fuel on site after commencement of 2013 Work Plan. Based on this scenario, 31.2 ML will be on site after commencement of 2013 Work Plan. However, AMEC model accounts for 3.46ML, and therefore the 2013 Work Plan Marginal Closure Cost estimate includes a cost allocation for removal of 27.7 ML of Type 1 fuel from site, at a $0.10/L backhaul rate (same as AMEC Model, January 2013).
	Fuel - Type 1, e.g. gasoline dregs	Remove								$0	
	waste batteries	Remove	$4,029	$4,029	100%	$4,029	$4,029		$4,029	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for removing waste batteries on site based on annual generation rates established in the Waste Management Plan for Construction, Operation, and Closure (H349000-1000-07-126-0007).
	assay & environmental lab reagents	Remove	$23,136	$23,136	100%	$23,136	$23,136		$23,136	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for removing environmental lab reagents on site based on annual generation rates established in the Waste Management Plan for Construction, Operation, and Closure (H349000-1000-07-126-0007).
	machine shop, paints, solvents etc	Remove	$10,627	$10,627	100%	$10,627	$10,627		$10,627	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for removing solvents, paints etc on site based on annual generation rates established in the Waste Management Plan for Construction, Operation, and Closure (H349000-1000-07-126-0007).
Soils	Contaminated soils investigation	Technical	$34,957	$0	100%	$34,957	$0		$0	($34,957)	2013 Marginal Closure Cost does not include a contaminated soils investigation as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $90,000, with $27,000 as contingency. Phase I and phase II audit is describe as a complete phase 1 to phase 3 environmental assessment to identify hydrocarbon contaminated soil and to develop soil remediation criteria and land farm design.
		Drilling & sampling	$34,957	$0	100%	$34,957	$0		$0	($34,957)	
	HC contaminated soils	Remove	$3,360,000	$0	100%	$3,360,000	$0		$0	($3,360,000)	2013 Marginal Closure Cost does not include a cost for the removal of contaminated soils as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $626,080, with $93,912 as contingency. The removal of contaminated soils is describe as: till hydrocarbon impacted soil - Land farm operation, and assumes mechanic and operator execute the work required to till the hydrocarbon impacted soil work.
Explosives	Explosives	Reclaim Explosives	$2,185,920	$2,185,920	100%	$2,185,920	$2,185,920		$2,185,920	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for removing off-site 20% of the explosives brought on-site for the 2013 Work Plan in 2013. Assume 200,000 kg of pre-packaged explosives will be needed and 4,400,000 kg of Ammonium Nitrate will be needed (estimated based on Hatch Logistical allowances)
	Explosives	Salvage (Explosives)	$0	$0	100%	$0	$0		$0	$0	
Water											
Water & pipelines - Water Liability	Pipelines	Remove	$44,280	$44,280	50%	$22,140	$22,140	$22,140		$0	No change since last revision. Only accounts for new pipeline built in camp build/install package. he total length of pipes is 8,200m according to Hatch YX001 Site Service Basis for Estimate
	Water Supply Embankment	Removal	$0	$21,035	100%	$0	$21,035	$21,035		$21,035	Included in 2013 Works since last revision to maintain conservatism. 2013 Marginal Closure Cost includes a cost allocation for removing 50% of the volume of the settling ponds presented in the Stormwater Management and Drainage System Design, H337697-0000-10-122-0001, Rev. B (Annex 1, Waste Rock Management Plan). Size estimates are as follows: Pond 1: Approx. 0.7 million of cubic meters (Page 9) Pond 2: Approx. 0.5 million cubic meters (Page 10) Pond 3: Approx. 0.15 million cubic meters (Page 10) TOTAL: 1.35 million cubic meters Therefore: 675,000 m3 will be constructed potentially in 2013 Assume the cost per hour of a CAT D8T Dozer is $176 and the cost per hour of a equipment operator is $124.50 (same as 2013 A&R Plan, AMEC) Assume it would take 70 hours to infill the partially constructed pond. Therefore it the cost of equipment and labour to reclaim the pond would be $21,035
On-going water											
On-Going Water - Water Liability	Water	Supplies	$15,600	$0	100%	$15,600	$0	$0		($15,600)	2013 Marginal Closure Cost does not include any cost associated with on-going water monitoring. It has been assumed that the marginal activities considered in 2013 Marginal Closure Cost will not require any on-going water monitoring additional to the 2013 A&R Plan (AMEC, January 2013). Specifically, the 2013 A&R Plan (AMEC, January 2013) closure cost estimate includes $21,100/year + $4,790 contingency/year for 5 years of post - closure environmental monitoring (including water sampling).
		Labour	$1,800	$0	100%	$1,800	$0	$0		($1,800)	
	Site	Access	$88,876	$0	100%	$88,876	$0	$0		($88,876)	
Mobilization											
Vehicles	Mary River vehicles	Move to MI	$173,688	$173,688	100%	$173,688	$173,688		$173,688	$0	No change since last revision. 2013 Marginal Closure Cost includes a cost allocation for moving all mobile equipment located at the Mine Site from the Mine Site to the Milne Inlet for sealift
Crew	Crew	Transportation	$533,253	$121,900	100%	$533,253	$121,900		$121,900	($411,353)	2013 A&R Plan (AMEC, January 2013) considers commercial flights for 25 person camp (MR & MI) during reclamation (See appendix G3 Camp Operations, cells 7, 14 & 35). Cost revised and 2013 Marginal Closure Cost includes a cost allocation for doubling this value to account for additional personnel.
		Accommodation	$417,660	$0	100%	$417,660	$0		$0	($417,660)	2013 Marginal Closure Cost does not include a cost associated with camp operation as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $2,007,017, with $221,931 as contingency. The following activities are included under camp operation in the 2013 A&R Plan: - Mary River Camp Operation Yr 2 (21 person camp operation, camp operating overhead and food) - Mary River Camp Operation Yr 3 (29 person camp operation, camp operating overhead and food) - Milne Inlet Year 2 - Operate avg 5 - person camp (16 person peak for 2 weeks) (Camp operating overhead and food) - Milne Inlet Year 3 - Operate avg 5 (6 person camp operation, camp operating overhead and food) - Milne Inlet Year 4 (14 person camp operation, camp operating overhead and food)
Fuel	Fuel	For Reclamation Activities	$0	$0	100%	$0	$0		$0	$0	No change since last revision. 2013 Marginal Closure Cost does not include a cost allocation for additional fuel. RECLAIM unit costs are inclusive of fuel, equipment and labour.
Sealift	Sealift	Activity	$3,000,000	$3,000,000	100%	$3,000,000	$3,000,000		$3,000,000	$0	No change since last revision. 2013 A&R Plan (AMEC, January 2013) considers sealift for existing materials on site. However, 2013 Marginal Closure Cost does include a cost allocation for sealift of new mobile equipment and construction support equipment brought on-site in 2013. This is in addition to the cost allocated in the 2013 A&R Plan (AMEC, January 2013). The cost associated with sealift has been assumed based on need of 3 ships @ 12,000 rev ton/ship to transport equipment off-site. It has been assumed a cost per ship of $1,000,000/ship or $83.30/rev ton.
		Manpower	$5,630,348	$0	100%	$5,630,348	$0		$0	($5,630,348)	2013 Marginal Closure Cost does not include a cost associated with manpower as the Unit Cost in RECLAIM are inclusive of fuel, labour and equipment.
Site	Site	General Site Clean-up	$60,000	$0	100%	$60,000	$0		$0	($60,000)	2013 Marginal Closure Cost does not include a general site clean up as it is covered in the 2013 A&R Plan (AMEC, January 2013) closure cost estimate. Specifically, the cost is listed as $70,543, with $10,581 as contingency. The general site cleanup is described as loader use for redirecting coarse clean up of streams and clean up residual fine waste on ground.
Credit from 2013 A&R Plan (AMEC, January 2013)	Credit for Fuel		$0	$0	100%	$0	$0		$0	$0	No credit for fuel has been applied in this scenario
	Credit for Sealift		$0	($1,954,715)	100%	$0	($1,954,715)		($1,954,715)	($1,954,715)	2013 A&R Plan (AMEC, January 2013) closure cost estimate considers 305 $/rev. ton for a Dedicated Charter Freight Sealift, and 198 $/rev. ton for Freight Sealift. 2013 Marginal Closure Cost assume a rate of 83.3 $/rev ton. The difference has been applied as credit. Quantities of sealift material in 2013 A&R Plan (AMEC, January 2013) remain the same.
Post-Closure											

Post closure monitoring - Land Liability	Site		$970,797	$457,971	100%	$970,797	$457,971		$457,971	($512,826)	An allowance for cover maintenance during 5 years of post-closure of building debris disposal area cover equals $100,000 (same as PDW Closure Plan) was included in the 2013 Marginal Closure Cost. This allowance includes: 1. Repair erosion - infill gullies 2. Repair erosion - upgrade diversion ditches 3. Remove problem vegetation 4. Repair animal damage 5. Repair/upgrade access controls 5 years of annual water treatment cost (@ $106,276/yr) was excluded in revised version. It has been assumed that the marginal activities considered in 2013 Marginal Closure Cost will not require any on-going water monitoring additional to the 2013 A&R Plan (AMEC, January 2013). Specifically, the 2013 A&R Plan (AMEC, January 2013) closure cost estimate includes $21,100/year + $4,790 contingency/year for 5 years of post -closure environmental monitoring (including water sampling). Note: Total includes a Net Present Value Calculation

	Previous Cost	Revised Cost	% Allocation	Previous Cost Associated 2013	Revised Cost Associated 2013	Water Liability Revised Cost Associated 2013	Land Liability Revised Cost Associated 2013	Difference
Capital Cost for Infrastructure	$20,302,115	$13,270,761	-	$14,820,127	$9,567,364	$43,175	$9,524,189	($7,031,355)
Mobilization	$9,814,949	$1,340,873	-	$9,814,949	$1,340,873	$0	$1,340,873	($8,474,077)

Indirect Costs	13-Mar-13 Percentages	Revised Percentages	13-Mar-13 Total Cost	Revised Cost	% Allocation	13-Mar-13 Cost Associated 2013	Revised Cost Associated 2013	Water Liability Revised Cost Associated 2013	Land Liability Revised Cost Associated 2013	Difference
Project Management	5%	5%	$1,015,106	$663,538	-	$741,006	$478,368	$2,159	$476,209	($262,638)
Bonding	1%	0%	$203,021	$0	-	$148,201	$0	$0	$0	($148,201)
Insurance	1%	0%	$203,021	$0	-	$148,201	$0	$0	$0	($148,201)
Engineering's	5%	0%	$1,015,106	$0	-	$741,006	$0	$0	$0	($741,006)
Contingency	10%	10%	$2,030,212	$1,327,076	-	$1,482,013	$956,736	$4,318	$952,419	($525,276)
Sub-total of Indirect			$4,466,465	$1,990,614	-	$3,260,428	$1,435,105	$6,476	$1,428,628	($1,825,323)

TOTALS	$34,583,530	$16,602,248	-	$27,895,504	$12,343,342	$49,651	$12,293,691	($15,552,162)