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MEMORANDUM

DATE: November 7, 2012

TO: Mr. Bob Holmes
Director
Minerals Development Branch
Yukon Energy, Mines and Resources

FROM: Mr. Steve Januszewski
Principal
SteveJan Consultants Inc.

RE: Review of Capstone's Closure Cost Estimate Update for Minto Mine dated September 30, 2012

1. INTRODUCTION

SJCI has undertaken a high level review of the *Closure Cost Estimate Update for Minto Mine*, dated September 30, 2012 and submitted as a memorandum from Ronald. K. Light-General Manager of Minto Mine to Mr. Bob Holmes, Chief-Mineral Resources for the Yukon Government's Department of Energy Mines and Resources (YG EMR). The update report was provided as a condition of the Quartz Mine Licence (QML-0001) and specifically in an EMR Approval of the Minto's Mine Development and Operations Plan, dated April 4, 2012.

The Company's most recent closure plan was Revision 3.2 of the Decommissioning and Reclamation Plan (DRP Rev3.2) and was dated June 2011. It provided information on closure plans for the site (as of early 2011) and one at the end of Year 2 of operation (approximately now). The update report is intended to be an interim review of the site's current closure liability, with a comprehensive updated Decommissioning and Reclamation Plan due for submission in June 2013. The interim report was also required to provide costing for three closure options for the Southwest Waste Rock Dump which has medium and high grade wastes with copper content greater than 0.10%, as was presented in Minto's Mine Development and Operations Plan v1, dated February 2012.

This work was authorized by Ms. Arlene Kyle-Mine Licensing Officer of YG EMR in an e-mail to the author on October 4, 2012.

The author has reviewed closure plans and closure cost estimates for a number of mines and mine development projects in the Yukon under contracts to YG EMR and DOE since 2004. He has been involved in reviews of the closure plans for the Minto Mine since 2007 and was last on the site in July 2012 and previously in September 2009.

This letter report focuses on the closure costings provided in the update memorandum for the Minto minesite in its current (i.e., autumn 2012) configuration. Changes to the tasks to be considered for the closure of the mine are limited to those previously described (in DRP Rev3.2) with the exception of the various options presented for the medium and high grade waste areas of the South West Dump, as was required by YG EMR. A few minor changes were made in the costing tables and these changes are described in Section 3, below.

A follow-up discussion with the parties (YG EMR, SFN, MEL, K&A, Access, SJCI) on Nov. 1, 2012 indicated the need for the next detailed plan to provide significantly more detailed costing information in support of the numbers put forward in the costing tables. This would include costing quotes, actual cost information, calculations for efforts listed all being shown, references to appropriate guidebooks, etc.

Preparation of this letter report does not include more thorough evaluation of the above information as it is intended only to be an interim update to the current RCP Rev3.2 and the three closure options for the SWD, and the follow-up discussion with the parties did not flag any other specific numbers that may warrant changing. As a result, this final report is based only on the earlier draft report by SJCI dated October 19, 2012 and the changes discussed and agreed to in the Nov. 1, 2012 meeting.

2. OVERVIEW AND ASSUMPTIONS

The Minto memorandum uses the previously prepared Year 2 (of Production) closure cost estimate as its starting point and provides a listing of changes it considers to reflect the current state of site development.

Due to the lack of support information, SJCI is having to accept the revised surface areas, volumes, etc. that Minto has listed as being different than those in the previous Year 2 costing that it has used in this latest cost estimate update.

The Mill Valley Fill Extension (MVFE) area is currently being constructed to help buttress the Dry Stack Tailings Facility due to stability concerns. This cost estimate includes the cost to place the remaining material to complete this facility.

A number of additional tasks were identified as being required for mine closure in an independent review of the Minto DRP and cost estimate that was prepared by Kuipers & Associates, LLC, dated June 25, 2012, for the Selkirk First Nation. SJCI provided comments on their report in a July 3, 2012 memorandum that was submitted to YG EMR. The current review does not consider any additional tasks, including those proposed by Kuipers as they will be considered in the next detailed DRP. SJCI is expecting the next update to the DRP (that is due in less than a year) to address many of the issues presented in the Kuipers report and those previously pointed out by SJCI in its review reports as well as from other reviewers including stakeholders such as the SFN. One item is the possible need for an engineered cover over the Main Waste Dump similar to what is now being required for consideration and costing for the South West Dump. An engineered cover over the MWD should be considered due to the lack of separation of higher grade waste materials into a separate area from the start of mining (estimated to be October 2007) until separation practices were implemented in July 2011. Appropriate conditions can be added to the

Water Use Licence amendment also due for review next year and/or the Quartz Mining Licence to ensure these issues are addressed.

It is recommended that next year's updated DRP provide additional support information for the proposed closure plan components and all the numbers utilized in the detailed costing tables.

3. REVIEW OF UNIT COSTS AND DETAILED COSTING TABLES

A number of minor changes have been made to the costing tables provided by Capstone.

Table A-2-Unit Rates

The costing of \$119/hr. (all-found) for a vibratory roller is likely reasonable for a 54" unit. However, an 84" wide unit is more appropriate for the work to be undertaken and an average price for such a machine is \$150/hr. This rate was used in the earlier SJCI cost estimate for Year 2.

The cost for Custom Rate F (Load, haul and dump SWD-Main Pit) has been adjusted from \$5/m³ to \$6/m³ at the discretion of the author.

Table A-3 Waste Rock and Overburden Dumps

Main Waste Dump:

Although an area of the dumps slope was covered and seeded during the author's site visit, grating a credit for 5.2 ha of completed reclamation work cannot be granted until the total area and performance of the cover can be established. This may typically be 2 or more years once maintenance of a newly reclaimed has ceased and the area is self-sustaining. As a result the 5.2ha of progressive reclamation have been deleted and the full area of 37.1ha has been used instead.

SWD Option Nos. 2-4:

The costing of \$20/m² (all-inclusive) for installing a geo-membrane liner over the selected areas of the SWD is accepted. Costs for other elements of the various cover systems over the dumps have been accepted.

Mill Valley Fill:

A costing was added for completing construction of the MVF/MFVE (which are considered to be synonymous). Only costs for the additional material were included. No additional costs were included for other tasks required to complete the facility and possible additional instrumentation that may need to be installed. The quantity of material required to complete material placement is based on the October 16, 2012 Mill Valley Fill Extension Construction Update, as provided by Capstone to YG EMR.

Table A-7 Mill & Ancillary Facilities

Increased the footprint area from 5.1ha to 10.8ha to include the fuel storage facility and crusher area, based on the latest survey. The earlier SJCI costing tables had the area at 7.6ha.

Table A-11 Reclamation Research and Revegetation

The total area for the MWD and SWD requiring reclamation has been revised to 107.3ha (i.e., addition of 5.2ha) as recently covered and seeded area cannot be considered complete yet (see write-up for Table A-3).

The surface area of mill area was adjusted from 7.6ha to 10.8ha based on survey information provided in Capstone memorandum.

Table A-12 Site Management and Monitoring

The revised operating costs (\$32k versus previous \$87k/mo) and treatment costs (\$1.38/m³ versus previous \$0.40/m³) have been accepted although there is no support information for these numbers. Similarly, the total annual volume of water to be treated remains at the originally estimated 360,000 m³/yr. (based on an early estimate of 50% of mean annual runoff from the site) as no revised numbers have been provided since the plant has been commissioned. This number has been accepted although modeled future predictions based on actual historic numbers should be provided in the next update to the DRP.

Table A-13 Supporting Studies

Revised cost for long term reclamation of contaminated soils back to \$22,500 as was previously provided by SJCI.

The cost estimate for detailed investigations on engineered cover designs and test plots has been increased from \$50,000 to \$75,000 due to the need to fully evaluate more complex covers.

4. CONCLUSIONS AND RECOMMENDATIONS

A first order review of Capstone's Closure Cost Estimate for Minto Mine has been completed and a revised interim total closure liability cost estimate has been generated. Due to the uncertainties involved with a number of the closure tasks, the lack of detailed supporting information for the proposed work and the numbers utilized in the costing tables it is recommended that conservative closure option for the South West Dump be the one used to set financial security until the next detailed Decommissioning and Reclamation Plan is submitted in mid-2013 and required financial security can be reviewed again.

Therefore the author recommends that Option 3a for the SWD, resulting in a total site cost closure estimate of \$24,400,000 (with a 12% contingency) be considered as an appropriate security figure, effective as soon as practical.

Table A-1
Summary Table of Estimated Closure Costs - 2012

| Table # | Description | Total Cost |
|----------------|--|-------------------|
| 3 | Overburden & Waste Rock Dumps (with var. alt. for high/mid-grade waste in SW Dump) | |
| | Option 1 - Cap high/mid-grade waste in the SW Dump with 0.5m soil cover (same as rest of dump) | \$4,303,123 |
| | Option 2a - Increase soil cover over high/mid-grade waste in the SW Dump to 1.0 m thickness | \$4,755,599 |
| | Option 2b - Increase soil cover over high-grade waste in the SW Dump to 1.0 m thickness | \$4,373,904 |
| | Option 3a - Cap area of high/mid-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$8,691,594 |
| | Option 3b - Cap area of high-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$4,888,627 |
| | Option 4a - Haul zone of high/mid-grade waste in SW Dump to open-pit for subaqueous disposal | \$16,727,749 |
| | Option 4b - Haul zone of high-grade waste in SW Dump to open-pit for subaqueous disposal | \$5,072,560 |
| 4 | Open Pit and Haul Roads | \$460,668 |
| 5 | Tailings Area and Diversion Structures | \$2,615,559 |
| 6 | Main Dam | \$817,691 |
| 7 | Mill and Ancillary Facilities | \$801,633 |
| 8 | Mill Pond | \$177,524 |
| 9 | Main Access Road | |
| | Scenario 1 - No Access Road Deactivation | \$2,140 |
| | Scenario 2 - Deactivate Access Road from Minto Creek to Mine Site | \$144,530 |
| | Scenario 3 - Deactivate Entire Access Road | \$253,906 |
| 10 | Miscellaneous Sites and Facilities | \$307,385 |
| 11 | Reclamation Research and Revegetation | |
| | Scenario 1 - No Access Road Deactivation | \$1,529,300 |
| | Scenario 2 - Deactivate from Minto Creek to Mine Site (11 km) | \$1,534,300 |
| | Scenario 3 - Deactivate Entire Access Road | \$1,557,900 |
| 12 | Post Closure Site Management | \$5,532,340 |
| 13 | Supporting Studies | \$510,500 |

| Total Closure Costs (assuming Access Road Scenario 3 and all SWD options) | |
|--|---------------------|
| Option 1 - Cap high & mid-grade waste in the SW Dump with 0.5m soil cover (same as rest of dump) | \$17,338,229 |
| Option 2a - Increase soil cover over high & mid-grade waste in the SW Dump to 1.0 m thickness | \$17,790,706 |
| Option 2b - Increase soil cover over high-grade waste in the SW Dump to 1.0 m thickness | \$17,409,010 |
| Option 3a - Cap area of high & mid-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$21,726,701 |
| Option 3b - Cap area of high-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$17,923,733 |
| Option 4a - Haul zone of high & mid-grade waste in SW Dump to open-pit for subaqueous disposal | \$29,762,855 |
| Option 4b - Haul zone of high-grade waste in SW Dump to open-pit for subaqueous disposal | \$18,107,666 |

| Total Closure Costs (Including Percentage Contingency Allowance on Above Elements) | |
|--|---------------------|
| | 12% |
| Option 1 - Cap high & mid-grade waste in the SW Dump with 0.5m soil cover (same as rest of dump) | \$19,418,817 |
| Option 2a - Increase soil cover over high/mid-grade waste in the SW Dump to 1.0 m thickness | \$19,925,590 |
| Option 2b - Increase soil cover over high-grade waste in the SW Dump to 1.0 m thickness | \$19,498,091 |
| Option 3a - Cap area of high & mid-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$24,333,905 |
| Option 3b - Cap area of high-grade waste in SW Dump with geosynthetic liner (e.g., BGM) | \$20,074,581 |
| Option 4a - Haul zone of high & mid-grade waste in SW Dump to open-pit for subaqueous disposal | \$33,334,398 |
| Option 4b - Haul zone of high-grade waste in SW Dump to open-pit for subaqueous disposal | \$20,280,586 |

Notes:

- The individual component cost calculation in this spreadsheet are still based on the original unit rates and cost factors (for consistency).

Table A-2
Minto Mine Closure Unit Rates for 2012

| Equipment Rates | | |
|--|-------------------|--------------------|
| Equipment | Rates/hr | Rate/mo |
| D9H Dozer | \$350 | |
| D6D Dozer | \$160 | |
| Haul Truck D250E | \$250 | |
| Tandem Haul Truck | \$150 | |
| Cat 235 Excavator | \$250 | |
| Cat 235 Excavator w hammer | \$275 | |
| Cat 16H grader | \$250 | |
| 988B Loader | \$190 | |
| Tractor Trailer (lowbed) | \$160 | |
| 30 ton Crane | \$190 | |
| Hiab Flatdeck truck | \$160 | |
| Cat 950 loader | \$140 | |
| Vibratory Roller | \$150 | |
| Pickup Truck | | \$2,500 |
| Personnel Rates | | |
| Personnel | Rates/hr | Rate/mo |
| Blaster | \$62 | |
| General Labourer | \$47 | |
| Trades Labourer | \$83 | |
| Site Supervisor | \$100 | |
| Design Engineer | \$135 | |
| Environmental Scientist | \$100 | |
| Project Manager | | \$9,700 |
| Camp Labourer | | \$4,000 |
| Site Caretaker | | \$6,100 |
| Environmental Monitor | | \$5,000 |
| Revegetation Rates | | |
| Revegetation Seed Mix | \$15.00 | per kg |
| Revegetation Seed Mix - 50kg/ha | \$750.00 | per ha |
| Fertilizer | \$1.00 | per kg |
| Fertilizer - 250kg/ha | \$250.00 | per ha |
| Tree Seedlings (1,000 seedlings per ha) | \$1,750.00 | per ha |
| Seed/Fertilizer Application | \$1,500.00 | per ha |
| Erosion Barrier | \$3.00 | per square m |
| Revegetation cost per ha. Including application cost | \$2,500.00 | per ha |
| Contractor Unit Rates & Camp Costs | | |
| Load, Haul and place soil cover MWD | \$5.50 | cu.m |
| Load, Haul and place soil cover SWD | \$4.25 | cu.m |
| Load, Haul & Place rock cover | \$7.00 | cu.m |
| Custom Rate A (Load, haul and place from ROD - MWD / LGO) | \$6.60 | cu.m |
| Custom Rate B (Load, haul and place ROD - HGO/MainWater Dam) | \$6.00 | cu.m |
| Custom Rate C (Load, haul and place ROD - CSA) | \$5.00 | cu.m |
| Custom Rate D (Push from TFOD - TF) | \$2.20 | cu.m |
| Custom Rate E (Push from MWD - U/S MWD) | \$2.20 | cu.m |
| Custom Rate F (Load, haul and dump SWD - Main Pit) | \$6.00 | cu.m |
| Unit Basis (footing burial) | \$5.00 | each |
| Produce Rip Rap | \$13.00 | cu.m |
| Load, Haul and Place Riprap | \$13.00 | cu.m |
| Freight run to Whitehorse | \$1,000.00 | per load |
| Camp Cost | \$70.00 | per day per person |
| Power and Heat | \$5,500.00 | per month |
| Employee Transport Costs | \$3,000.00 | per month |
| Barge Operating Cost | \$10,000.00 | per month |

Notes:

- 1) Custom Rates A through E previously developed specifically for Minto Mine by Capstone, taking into account such factors as haul distance, grade, machinery req'd, time reqd, etc. with adjustments considered appropriate by the author.
- 2) Custom Rate F is new to this costing iteration and is based on experience and extrapolation of other custom rates, with adjustment as considered appropriate by SJCI.

Table A-3
Waste Rock and Overburden Dumps, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|---------------|--|---|-------|----------|------------|-------------|--------------------|
| | WASTE ROCK AND OVERBURDEN DUMPS | | | | | | |
| 3.1 | Main Waste Dump (s 6.1.1) (37.1ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 500 | \$350 | \$175,000 | \$175,000 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 60 | \$150 | \$9,000 | \$9,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover MWD | cu.m. | 185,500 | \$5.50 | \$1,020,250 | \$1,020,250 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$84,298 | \$84,298 |
| | Sub-Total | | | | | | \$1,288,548 |
| 3.2 | Southwest Dump | | | | | | |
| 3.2.1 | Southwest Dump Option 1 - 0.5 m Soil Cover on Entire Dump (70.2ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 220 | \$350 | \$77,000 | \$77,000 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 160 | \$150 | \$24,000 | \$24,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 351,000 | \$4.25 | \$1,491,750 | \$1,491,750 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$111,493 | \$111,493 |
| | Sub-Total | | | | | | \$1,704,243 |
| 3.2.2a | Southwest Dump Option 2a - 1.0 m Soil Cover on MGW and HGW Areas | | | | | | |
| | SWD Excluding Areas of High/Mid-Grade Waste (50.3ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 176 | \$350 | \$61,600 | \$61,600 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 128 | \$150 | \$19,200 | \$19,200 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 251,500 | \$4.25 | \$1,068,875 | \$1,068,875 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$80,477 | \$80,477 |
| | Areas of High/Mid-Grade Waste (19.9ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 44 | \$350 | \$15,400 | \$15,400 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 32 | \$150 | \$4,800 | \$4,800 |
| | Load, haul & place overburden for revegetation (1.0m) | Load, Haul and place soil cover SWD | cu.m. | 199,000 | \$4.25 | \$845,750 | \$845,750 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$60,617 | \$60,617 |
| | Sub-Total | | | | | | \$2,156,719 |
| 3.2.2b | Southwest Dump Option 2b - 1.0 m Soil Cover on HGW Areas | | | | | | |
| | SWD Excluding Area of High Grade Waste (67.8ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 220 | \$350 | \$77,000 | \$77,000 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 160 | \$150 | \$24,000 | \$24,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 339,000 | \$4.25 | \$1,440,750 | \$1,440,750 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$107,923 | \$107,923 |
| | Area of High Grade Waste (2.4ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 33 | \$350 | \$11,550 | \$11,550 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 24 | \$150 | \$3,600 | \$3,600 |
| | Load, haul & place overburden for revegetation (1.0m) | Load, Haul and place soil cover SWD | cu.m. | 24,000 | \$4.25 | \$102,000 | \$102,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$8,201 | \$8,201 |
| | Sub-Total | | | | | | \$1,775,023 |
| 3.2.3a | Southwest Dump Option 3a - Geosynthetic Liner (e.g., BGM) with bedding layer on MGW and HGW Areas | | | | | | |
| | SWD Excluding Areas of High/Mid-Grade Waste (50.3ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 176 | \$350 | \$61,600 | \$61,600 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 128 | \$150 | \$19,200 | \$19,200 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 251,500 | \$4.25 | \$1,068,875 | \$1,068,875 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$80,477 | \$80,477 |
| | Areas of High/Mid-Grade Waste (19.9ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 132 | \$350 | \$46,200 | \$46,200 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 72 | \$150 | \$10,800 | \$10,800 |
| | Placement of bedding layer (e.g., 0.1m OVB) | Load, Haul and place soil cover SWD | cu.m. | 19,900 | \$4.25 | \$84,575 | \$84,575 |
| | Installation of geosynthetic membrane (e.g. BGM) | Price is delivered & installed on prepared foundation | sq.m. | 199,000 | \$20 | \$3,980,000 | \$3,980,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 99,500 | \$4.25 | \$422,875 | \$422,875 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$318,112 | \$318,112 |
| | Sub-Total | | | | | | \$6,092,714 |
| 3.2.3b | Southwest Dump Option 3b - Geosynthetic Liner (e.g., BGM) with bedding layer on HGW Area | | | | | | |
| | SWD Excluding Area of High Grade Waste (67.8ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 220 | \$350 | \$77,000 | \$77,000 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 160 | \$150 | \$24,000 | \$24,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 339,000 | \$4.25 | \$1,440,750 | \$1,440,750 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$107,923 | \$107,923 |
| | Area of High Grade Waste (2.4ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 132 | \$350 | \$46,200 | \$46,200 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 72 | \$150 | \$10,800 | \$10,800 |
| | Placement of bedding layer (e.g., 0.1m OVB) | Load, Haul and place soil cover SWD | cu.m. | 2,400 | \$4.25 | \$10,200 | \$10,200 |
| | Installation of geosynthetic membrane (e.g. BGM) | Price is delivered and installed on prepared foundation | sq.m. | 24,000 | \$20 | \$480,000 | \$480,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 12,000 | \$4.25 | \$51,000 | \$51,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$41,874 | \$41,874 |
| | Sub-Total | | | | | | \$2,289,747 |
| 3.2.4a | Southwest Dump Option 4a - Haul MGW/HGW to Main Pit for Subaqueous Disposal | | | | | | |
| | SWD Excluding Areas of High/Mid-Grade Waste (50.3ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 176 | \$350 | \$61,600 | \$61,600 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 128 | \$150 | \$19,200 | \$19,200 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 251,500 | \$4.25 | \$1,068,875 | \$1,068,875 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$80,477 | \$80,477 |
| | Areas of High/Mid-Grade Waste (19.9ha) | | | | | | |

**Table A-3
Waste Rock and Overburden Dumps, Estimated Closure Costs - 2012**

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|---|--|---|-------|-----------|------------|--------------|---------------------|
| | Haul high & mid grade waste to Main Pit | Shovel/Truck combination (TBD) | cu.m. | 1,927,000 | \$6 | \$11,562,000 | \$11,562,000 |
| | Spread and grade waste in Main Pit | D9H Dozer | hrs | 100 | \$350 | \$35,000 | \$35,000 |
| | Recontour SW Dump in area of excavation | D9H Dozer | hrs | 100 | \$350 | \$35,000 | \$35,000 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 99,500 | \$4.25 | \$422,875 | \$422,875 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$843,841 | \$843,841 |
| | Sub-Total | | | | | | \$14,128,869 |
| 3.2.4b | Southwest Dump Option 4b - Haul HGW to Main Pit for Subaqueous Disposal | | | | | | |
| | SWD Excluding Area of High Grade Waste (67.8ha) | | | | | | |
| | Roll crest and recontour | D9H Dozer | hrs | 198 | \$350 | \$69,300 | \$69,300 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 144 | \$150 | \$21,600 | \$21,600 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 339,000 | \$4.25 | \$1,440,750 | \$1,440,750 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$107,216 | \$107,216 |
| | Areas of High-Grade Waste (2.4ha) | | | | | | |
| | Haul high-grade waste to Main Pit | Shovel/Truck combination (TBD) | cu.m. | 117,000 | \$6 | \$702,000 | \$702,000 |
| | Spread and grade waste in Main Pit | D9H Dozer | hrs | 20 | \$350 | \$7,000 | \$7,000 |
| | Recontour SW Dump in area of excavation | D9H Dozer | hrs | 44 | \$350 | \$15,400 | \$15,400 |
| | Additional compaction, as req'd | Vibratory Roller | hrs | 32 | \$150 | \$4,800 | \$4,800 |
| | Load, haul & place overburden for revegetation (0.5m) | Load, Haul and place soil cover SWD | cu.m. | 12,000 | \$4.25 | \$51,000 | \$51,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$54,614 | \$54,614 |
| | Sub-Total | | | | | | \$2,473,680 |
| 3.3 | Ice-Rich Overburden Dump (s 6.1.3) | | | | | | |
| | Roll crest of berm and recontour | D9H Dozer | hrs | 16 | \$350.00 | \$5,600 | \$5,600 |
| | Excavate material for placement on berm | Cat 235 Excavator | hrs | 40 | \$250.00 | \$10,000 | \$10,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$1,092 | \$1,092 |
| | Sub-Total | | | | | | \$16,692 |
| 3.4 | Reclamation Overburden Dump (s 6.1.4) | | | | | | |
| | Blade pad after removal of material during reclamation | D6D Dozer | hrs | 90 | \$160.00 | \$14,400 | \$14,400 |
| | Project Management & Engineering | 7% of Total Cost | % | | 0.07 | 1008 | 1008 |
| | Sub-Total | | | | | | \$15,408 |
| 3.5 | Low Grade Ore Stockpile and Pad (s 6.2) | | | | | | |
| | Recontour Stockpile and Pad | D9H Dozer | hrs | 40 | \$350 | \$13,825 | \$13,825 |
| | Load, haul and place overburden for revegetation | Custom Rate A (Load, haul and place from IROD - M | cu.m. | 16,250 | \$6.60 | \$107,250 | \$107,250 |
| | Removal of bottom layer of material, move to pit. | Misc. | l.s. | 1 | \$5,000.00 | \$5,000 | \$5,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$8,475 | \$8,475 |
| | Sub-Total | | | | | | \$134,550 |
| 3.6 | High Grade Ore Stockpile Pad (s 6.2) | | | | | | |
| | Recontour stockpile and pad | D9H Dozer | hrs | 54 | \$350.00 | \$18,900 | \$18,900 |
| | Load, haul and place overburden for revegetation | Custom Rate A (Load, haul and place from IROD - M | cu.m. | 24,000 | \$6.60 | \$158,400 | \$158,400 |
| | Removal of bottom layer of material, move to pit. | Misc. | | | \$7,500.00 | \$7,500 | \$7,500 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$12,936 | \$12,936 |
| | Sub-Total | | | | | | \$197,736 |
| 3.7 | Grade Bin Disposal Area | | | | | | |
| | Move material to Area 1 Pit | 988B Loader | hrs | 3,500 | \$190.00 | \$0 | \$0 |
| | | D9H Dozer | hrs | 360 | \$350.00 | \$0 | \$0 |
| | | Haul Truck D250E | hrs | 5,500 | \$250.00 | \$0 | \$0 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$0 | \$0 |
| | Sub-Total | | | | | | \$0 |
| 3.8 | Contractor's Shop and Work Area (s 6.9.7) | | | | | | |
| | Remove salvageable equipment | General Labourer | hrs | 75 | \$47 | \$3,525 | |
| | | Haul Truck D250E | hrs | 25 | \$250 | \$6,250 | |
| | | Trades Labourer | hrs | 60 | \$83 | \$4,980 | \$14,755 |
| | Dismantle buildings | General Labourer | hrs | 60 | \$47 | \$2,820 | |
| | | 30 ton Crane | hrs | 13 | \$190 | \$2,375 | |
| | | Cat 235 Excavator | hrs | 38 | \$250 | \$9,375 | \$14,570 |
| | Haul building pieces off site - equipment | Tractor Trailer (lowbed) | hrs | 25 | \$160 | \$4,000 | \$4,000 |
| | Scrap haul to site landfill | Haul Truck D250E | hrs | 25 | \$250 | \$6,250 | \$6,250 |
| | Excavate & haul contaminated materials to site LTF | Misc. | l.s. | 1 | \$6,250 | \$6,250 | \$6,250 |
| | Bury footings - haul and place fill, locally sourced | Unit basis (footing burial) | each | 3,125 | \$5 | \$15,625 | \$15,625 |
| | Recontour | D9H Dozer | hrs | 19 | \$350 | \$6,563 | \$6,563 |
| | Load, haul and place overburden for revegetation | Custom Rate C (Load, haul and place IROD - CSA) | cu.m. | 6,250 | \$5 | \$31,250 | \$31,250 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$6,948 | \$6,948 |
| | Sub-Total | | | | | | \$106,211 |
| 3.9 | Mill Valley Fill Facility (s. 6.7) | | | | | | |
| | Placement of material to complete MVFE as per design | Custom Rate C (Load, haul and place ROD - CSA) | cu.m. | 81,000 | \$5.00 | \$405,000 | \$405,000 |
| | Roll crest and recontour | D9H Dozer | hrs | 30 | \$350.00 | \$10,500 | \$10,500 |
| | Load, haul and place overburden for revegetation | Load, Haul and place soil cover | cu.m. | 23,900 | \$7.00 | \$167,300 | \$167,300 |
| | Excavation of surface spillway channel | Cat 235 Excavator | hrs | 120 | \$250 | \$30,000 | |
| | | D9H Dozer | cu.m. | 120 | \$350.00 | \$42,000 | \$72,000 |
| | Provision for placement of rip rap | Rip rap | cu.m. | 5,000 | \$26 | \$130,000 | \$130,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$54,936 | \$54,936 |
| | Sub-Total | | | | | | \$839,736 |
| Total Estimated Cost in Reclaiming Overburden and Waste Rock Dumps | | | | | | | |

Table A-3
Waste Rock and Overburden Dumps, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|----------|--|--------------------|-------|----------|------------|------|--------------|
| | Assuming Option 1 for Southwest Dump (Cap entire facility with 0.5m thick soil cover) | | | | | | \$4,303,123 |
| | Assuming Option 2a for Southwest Dump (Cap high & mid-grade waste in place with 1.0 m thick soil cover) | | | | | | \$4,755,599 |
| | Assuming Option 2b for Southwest Dump (Cap high-grade waste in place with 1.0 m thick soil cover) | | | | | | \$4,373,904 |
| | Assuming Option 3a for Southwest Dump (Cap high & mid-grade waste in place with high quality geosynthetic liner) | | | | | | \$8,691,594 |
| | Assuming Option 3b for Southwest Dump (Cap high-grade waste in place with high quality geosynthetic liner) | | | | | | \$4,888,627 |
| | Assuming Option 4a for Southwest Dump (Haul high & mid-grade waste to pit for subaqueous disposal) | | | | | | \$16,727,749 |
| | Assuming Option 4b for Southwest Dump (Haul high-grade waste to pit for subaqueous disposal) | | | | | | \$5,072,560 |
| Note: | | | | | | | |

Table A-4
Open Pit and Haul Roads, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|---|--|-----------------------------|-------|----------|------------|----------|------------------|
| OPEN PIT, UNDERGROUND AND HAUL ROADS | | | | | | | |
| 4.1 | Main Pit | | | | | | |
| | Remove pit pumps and pipe column/general cleanup | General Labourer | hrs | 80 | \$47 | \$3,760 | |
| | | Trades Labourer | hrs | 20 | \$83 | \$1,660 | |
| | | Support equipment | l.s. | | \$1,000 | \$1,000 | \$6,420 |
| | Secure pit access - boulder placement | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | |
| | Highwall perimeter safety berm/trench (~1km) | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | \$20,000 |
| | Construct inflow spillway from upgradient of pit | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | |
| | | Produce Riprap | cu.m | 200 | \$13 | \$2,600 | |
| | | Load, Haul/Place Riprap | cu.m | 200 | \$13 | \$2,600 | \$20,200 |
| | Construct exit channel into Mill Pond system | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | |
| | | Produce Riprap | cu.m | 200 | \$13 | \$2,600 | |
| | Riprap shoulder exiting pit-spillway | Load/Haul/Place Rip Rap | cu.m | 200 | \$13 | \$2,600 | |
| | | General Labourer | hrs | 10 | \$47 | \$470 | \$10,670 |
| | Construct Passive Treatment System | | | | | | |
| | Organic carbon source (to site or chipped at site) | Haulage and handling | l.s. | | \$75,000 | \$75,000 | |
| | Clean (< 0.1% Cu) Waste Rock for Construction | Haulage and handling | l.s. | | \$25,000 | \$25,000 | |
| | Construction of treatment area | Cat 235 Excavator | hrs | 160 | \$250 | \$40,000 | |
| | | Haul Truck D250E | hrs | 160 | \$250 | \$40,000 | |
| | | General Labourer | hrs | 200 | \$47 | \$9,400 | \$189,400 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$17,268 | \$17,268 |
| | Sub-Total | | | | | | \$263,958 |
| 4.2 | Area 2 Pit | | | | | | |
| | Remove pit pumps and pipe column/general cleanup | General Labourer | hrs | 40 | \$47 | \$1,880 | |
| | | Trades Labourer | hrs | 10 | \$83 | \$830 | |
| | | Support equipment | l.s. | | \$1,000 | \$1,000 | \$3,710 |
| | Secure pit access - boulder placement | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | \$10,000 |
| | Construct exit channel into Mill Pond system | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | |
| | Riprap shoulder exiting pit | Place Riprap | cu.m | 50 | \$13 | \$650 | |
| | Exit Spillway construction | General Labourer | hrs | 40 | \$47 | \$1,880 | |
| | | Produce Riprap | cu.m | 250 | \$13 | \$3,250 | |
| | | Load/Haul/Place Rip Rap | cu.m | 250 | \$13 | \$3,250 | \$19,030 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$2,292 | \$2,292 |
| | Sub-Total | | | | | | \$35,032 |
| 4.3 | Area 118 Pit | | | | | | |
| | Remove pit pumps and pipe column/general cleanup | General Labourer | hrs | 30 | \$47 | \$0 | |
| | | Trades Labourer | hrs | 7.5 | \$83 | \$0 | |
| | | Support equipment | l.s. | | \$750 | \$0 | \$0 |
| | Secure pit access - boulder placement | Cat 235 Excavator | hrs | 15 | \$250 | \$0 | |
| | | Haul Truck D250E | hrs | 15 | \$250 | \$0 | \$0 |
| | Construct exit channel into Mill Pond system | Cat 235 Excavator | hrs | 30 | \$250 | \$0 | |
| | | Produce Riprap | cu.m | 30 | \$13 | \$0 | |
| | Riprap shoulder exiting pit | Place Riprap | cu.m | 37.5 | \$13 | \$0 | |
| | Exit Spillway construction | General Labourer | hrs | 30 | \$47 | \$0 | |
| | | Produce Riprap | cu.m | 187.5 | \$13 | \$0 | \$0 |
| | | Load/Haul/Place Rip Rap | cu.m | 187.5 | \$13 | \$0 | \$0 |
| | Haul and place overburden for revegetation | Load, Haul and place soil c | cu.m. | 7500 | \$4.25 | \$0 | \$0 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$0 | \$0 |
| | Sub-Total | | | | | | \$0 |
| 4.4 | Haul Roads (s 6.5) (15 ha) | | | | | | |
| | Remove culverts and haul away | General Labourer | hrs | 55 | \$47 | \$2,585 | |
| | | Cat 235 Excavator | hrs | 28 | \$250 | \$7,000 | |
| | | Haul Truck D250E | hrs | 28 | \$250 | \$7,000 | \$16,585 |
| | Recontour slopes | D9H Dozer | hrs | 208 | \$350 | \$72,800 | \$72,800 |
| | Scarify surfaces | Cat 16H grader | hrs | 208 | \$250 | \$52,000 | |
| | | General Labourer | hrs | 28 | \$47 | \$1,316 | \$53,316 |
| | Stabilize slopes - erosion barriers - material | Unit Cost Basis | sq.m | 2,800 | \$3 | \$8,400 | \$8,400 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$10,577 | \$10,577 |
| | Sub-Total | | | | | | \$161,678 |
| 4.5 | Underground | | | | | | |
| | Backfill underground waste | Load, Haul and place mat | cu.m | 70000 | \$7 | \$0 | \$0 |
| | Recontour slopes | D9H Dozer | hrs | 20 | \$350 | \$0 | \$0 |
| | Seal off underground portal | | l.s. | 1 | \$10,000 | \$0 | \$0 |
| | Seal off ventilation raise | | l.s. | 1 | \$5,000 | \$0 | \$0 |
| | Scarify road | Cat 16H grader | hrs | 8 | \$250 | \$0 | \$0 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$0 | \$0 |
| | Sub-Total | | | | | | \$0 |
| Total Estimated Cost in Reclaiming Open Pit and Haul Roads | | | | | | | \$460,668 |

Note:
Linear disturbances to be scarified / decompacted and allowed to naturally revegetate

Table A-5
Tailings Area and Diversion Structures, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|---|--|-----------------------------------|-------|----------|------------|-------------|--------------------|
| | TAILINGS AREA | | | | | | |
| 5.1 | Tailings Deposit - Entire Area (44.8 ha) | | | | | | |
| | Roll crest of starter bench and recontour | D9H Dozer | hrs | 50 | \$350 | \$17,500 | \$17,500 |
| | Haul overburden ROD - DSTF (0.5m) | Custom Haul Rate | cu.m | 224,000 | \$6 | \$1,344,000 | \$1,344,000 |
| | Install capillary break (0.25m) | Load, haul & place rockfill layer | cu.m. | 112,000 | \$7 | \$784,000 | \$784,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$150,185 | \$150,185 |
| | Sub-Total | | | | | | \$2,295,685 |
| 5.2 | South Diversion Ditch (length cut by 50%) | | | | | | |
| | Widen south diversion ditch | D9H Dozer | hrs | 50 | \$350 | \$17,500 | |
| | | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | \$22,500 |
| | Riprap | Produce Riprap | cu.m | 1,200 | \$13 | \$15,600 | \$15,600 |
| | | Load and Haul Rip Rap | cu.m | 1,200 | \$13 | \$15,600 | \$15,600 |
| | Construct spillway into Area 2 Pit | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | |
| | | Produce Riprap | cu.m | 200 | \$13 | \$2,600 | \$33,200 |
| | | Haul/Place Rip Rap | cu.m | 200 | \$13 | \$2,600 | \$20,200 |
| | HDPE liner | Unit rate | sq.m | 2,400 | \$10 | \$24,000 | \$24,000 |
| | | General Labourer | hrs | 80 | \$47 | \$3,760 | \$3,760 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$7,116 | \$7,116 |
| | Sub-Total | | | | | | \$141,976 |
| 5.3 | Surface Drainage Channel (~750m length) | | | | | | |
| | Construct channel atop covered facility | Misc. | l.s. | 1 | \$37,500 | \$37,500 | \$37,500 |
| | Engineering design for channel | Misc. | l.s. | 1 | \$5,000 | \$5,000 | \$5,000 |
| | Line channel with liner and armoring | Produce Rip Rap | cu.m | 2,400 | \$13 | \$31,200 | |
| | | Load, haul & place riprap | cu.m | 2,400 | \$13 | \$31,200 | |
| | | HDPE liner | sq.m | 3,600 | \$10 | \$36,000 | |
| | | Bedding-Filter zones | cu.m | 3,600 | \$6 | \$21,600 | |
| | | General Labourer | hrs | 80 | \$47 | \$3,760 | \$123,760 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$11,638 | \$11,638 |
| | Sub-Total | | | | | | \$177,898 |
| Total Estimated Cost in Reclaiming Tailings Area | | | | | | | \$2,615,559 |

Note:

Table A-6
Main Water Dam, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|---|--|---|-------|----------|------------|-----------|------------------|
| | WATER DAM | | | | | | |
| 6.1 | Reclaim System | | | | | | |
| | Remove salvageable equipment - pipeline/pumps | General Labourer | hrs | 48 | \$47 | \$2,256 | |
| | | Trades Labourer | hrs | 98 | \$83 | \$8,134 | \$10,390 |
| | Remove pipeline | Haul Truck D250E | hrs | 100 | \$250 | \$25,000 | |
| | | Cat 235 Excavator | hrs | 100 | \$250 | \$25,000 | |
| | | General Labourer | hrs | 200 | \$47 | \$9,400 | \$59,400 |
| | Dismantle Building | Cat 235 Excavator | hrs | 16 | \$250 | \$4,000 | |
| | | Trades Labourer | hrs | 10 | \$83 | \$830 | |
| | | General Labourer | hrs | 20 | \$47 | \$940 | \$5,770 |
| | Misc. Supplies & Tools | Misc. | l.s. | 1 | \$1,000 | \$1,000 | \$1,000 |
| | Recontour alignment | D9H Dozer | hrs | 16 | \$350 | \$5,600 | \$5,600 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$5,751 | \$5,751 |
| | Sub-Total | | | | | | \$87,911 |
| 6.2 | Main Dam | | | | | | |
| | Pump down impounded water, over spillway (using reclaim pumps) | General Labourer | hrs | 96 | \$47 | \$4,512 | \$4,512 |
| | Misc. Supplies & Tools | Misc. | l.s. | 1 | \$5,000 | \$5,000 | \$5,000 |
| | Engineering design for final structure include appropriate flow determination, channel designs, etc. | Misc. | l.s. | 1 | \$20,000 | \$20,000 | \$20,000 |
| | Build coffer dam and install pump-around system | Misc. | l.s. | 1 | \$10,000 | \$10,000 | \$10,000 |
| | Operate system until new structure is ready | Misc. | l.s. | 1 | \$10,000 | \$10,000 | \$10,000 |
| | Stockpile rip rap from downstream shell | Unit Cost Basis | cu.m | 10,000 | \$10 | \$100,000 | \$100,000 |
| | Breach Dam: push material using dozer into new areas | Custom Rate E (Push from MWD - U/S MWD) | cu.m | 25,000 | \$2.20 | \$55,000 | |
| | and load, haul & dump and contour material in new area | Unit Cost Basis | cu.m | 31,000 | \$4.50 | \$139,500 | |
| | | Environmental Scientist | hrs | 60 | \$100.00 | \$6,000 | \$200,500 |
| | Construct stream channel at original grade - load, haul & place rip rap (salvage from old WSP dam stockpile) | Unit Cost Basis | cu.m | 1,125 | \$13 | \$14,625 | \$14,625 |
| | Load, haul, place & contour overburden on slopes of new area u/s of MWD | Unit Cost Basis | cu.m | 15,000 | \$6 | \$90,000 | \$90,000 |
| | Stabilize slopes with erosion barriers | Unit Rates | sq. m | 15,000 | \$3 | \$45,000 | \$45,000 |
| | Misc. Supplies & Tools | Misc. | l.s. | | \$3,000 | \$3,000 | \$3,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$34,485 | \$34,485 |
| | Sub-Total | | | | | | \$527,122 |
| 6.3 | Wetland Passive Treatment Sytem | | | | | | |
| | Organic carbon source (to site or chipped at site) | Haulage and handling | l.s. | | \$75,000 | \$75,000 | |
| | Clean (< 0.1% Cu) Waste Rock for Construction | Haulage and handling | l.s. | | \$25,000 | \$25,000 | |
| | Construction of treatment area | Cat 235 Excavator | hrs | 160 | \$250 | \$40,000 | |
| | | Haul Truck D250E | hrs | 160 | \$250 | \$40,000 | |
| | | General Labourer | hrs | 200 | \$47 | \$9,400 | \$189,400 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$13,258 | \$13,258 |
| | Sub-Total | | | | | | \$202,658 |
| Total Estimated Cost in Reclaiming Water Dam | | | | | | | \$817,691 |

**Table A-9
Main Access Road, Estimated Closure Costs - 2012**

| Scenario 1 - No Road Deactivation | | | | | | | |
|--|--|--------------------|-------|----------|------------|---------|----------------|
| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
| 9.1 | NO ROAD DECOMMISSIONING REQUIRED | | | | | | |
| 9.1.1 | Road Surface | | | | | | |
| | Install road barrier at west side of Minto Creek | Misc | I.s. | | \$2,000 | \$2,000 | \$2,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$140 | \$140 |
| | Subtotal: | | | | | | |
| Total Estimated Cost for Access Road Closure (Scenario 1) | | | | | | | \$2,140 |

| Scenario 2 - Decommission Access Road From Minto Creek to Mine Site (11 KM) | | | | | | | |
|--|--|--------------------|------------|----------|------------|----------|------------------|
| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total Adjusted |
| 9.2 | ACCESS ROAD - 11 KM SECTION | | | | | | |
| 9.2.1 | Road Surface | | | | | | |
| | Scarify - 11 km | Cat 16H grader | hrs | 70 | \$250 | \$17,500 | \$17,500 |
| | Recontour slopes and drainages | D9H Dozer | hrs | 25 | \$350 | \$8,750 | \$8,750 |
| | Project Management & Engineering | | % | | 7.00% | \$1,838 | \$1,838 |
| | Subtotal: | | | | | | \$28,088 |
| 9.2.2 | Culverts | | | | | | |
| | Culvert excavation (40 small culverts) | Cat 235 Excavator | hrs | 100 | \$250 | \$25,000 | \$25,000 |
| | Culvert removal | General Labourer | hrs | 140 | \$47 | \$6,580 | \$6,580 |
| | | Haul Truck D250E | hrs | 100 | \$250 | \$25,000 | \$31,580 |
| | Minto Creek Culvert Removal & Streambank Restoration | Trades Labourer | hrs | 40 | \$83 | \$3,320 | \$3,320 |
| | | General Labourer | hrs | 75 | \$47 | \$3,525 | \$3,525 |
| | | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | \$16,845 |
| | Recontour slopes and drainage | D9H Dozer | hrs | 70 | \$350 | \$24,500 | \$24,500 |
| | Stabilize slopes | General Labourer | hrs | 200 | \$47 | \$9,400 | \$9,400 |
| | Erosion barriers | Unit Cost Basis | per sq. m. | 500 | \$3 | \$1,500 | \$10,900 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$7,618 | \$7,618 |
| | Subtotal: | | | | | | \$116,443 |
| Total Estimated Cost for Access Road Closure (Scenario 2) | | | | | | | \$144,530 |

| Scenario 3 - Decommission Entire Access Road (27 KM) | | | | | | | |
|--|--|--------------------------|------------|----------|------------|----------|------------------|
| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total Adjusted |
| 9.3 | ACCESS ROAD - 27 KM SECTION | | | | | | |
| 9.3.1 | Road Surface | | | | | | |
| | Scarify - 27 km | Cat 16H grader | hrs | 150 | \$250 | \$37,500 | \$37,500 |
| | Recontour slopes and drainage | D9H Dozer | hrs | 50 | \$350 | \$17,500 | \$17,500 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$3,850 | \$3,850 |
| | Subtotal: | | | | | | \$58,850 |
| 9.3.2 | Big Creek Bridge | | | | | | |
| | Remove bridge decking and span | General Labourer | hrs | 50 | \$47 | \$2,350 | \$2,350 |
| | | Crane | hrs | 40 | \$190 | \$7,600 | \$7,600 |
| | | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | \$10,000 |
| | | Tractor Trailer (lowbed) | hrs | 20 | \$160 | \$3,200 | \$23,150 |
| | Cut off piles | General Labourer | hrs | 50 | \$47 | \$2,350 | \$2,350 |
| | Re-contour | Cat 235 Excavator | hrs | 30 | \$250 | \$7,500 | \$7,500 |
| | | D9H Dozer | hrs | 30 | \$350 | \$10,500 | \$18,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$3,045 | \$3,045 |
| | Subtotal: | | | | | | \$46,545 |
| 9.3.3 | Barge Ramps | | | | | | |
| | Remove all gravel | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | \$5,000 |
| | Re-countour areas and scarify | D9H Dozer | hrs | 30 | \$350 | \$10,500 | \$10,500 |
| | Shoreline restoration | Misc. | I.s. | | \$5,000 | \$5,000 | \$5,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$1,435 | \$1,435 |
| | Subtotal: | | | | | | \$21,935 |
| 9.3.4 | Culverts | | | | | | |
| | Culvert excavation (45 small culverts) | Cat 235 Excavator | hrs | 115 | \$250 | \$28,750 | \$28,750 |
| | Culvert removal | General Labourer | hrs | 150 | \$47 | \$7,050 | \$7,050 |
| | | Haul Truck D250E | hrs | 115 | \$250 | \$28,750 | \$35,800 |
| | Minto Creek Culvert Removal & Streambank Restoration | Trades Labourer | hrs | 40 | \$83 | \$3,320 | \$3,320 |
| | | General Labourer | hrs | 75 | \$47 | \$3,525 | \$3,525 |
| | | Cat 235 Excavator | hrs | 40 | \$250 | \$10,000 | \$16,845 |
| | Recontour slopes and drainage | D9H Dozer | hrs | 70 | \$350 | \$24,500 | \$24,500 |
| | Stabilize slopes | General Labourer | hrs | 200 | \$47 | \$9,400 | \$9,400 |
| | Erosion barriers | Unit Cost Basis | per sq. m. | 1,000 | \$3 | \$3,000 | \$12,400 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$8,281 | \$8,281 |
| | Subtotal: | | | | | | \$126,576 |
| Total Estimated Cost for Access Road Closure (Scenario 3) | | | | | | | \$253,906 |

Table A-10
Miscellaneous Sites and Facilities, Estimated Closure Costs - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|--|--|--------------------------|------------|-----------|--------------|-------------------------------|------------------|
| MISCELLANEOUS SITES AND FACILITIES | | | | | | | |
| 10.1 | Airstrip | | | | | | |
| | Scarify airstrip and adjacent laydown areas | Cat 16H Grader | hrs | 40 | \$250 | \$10,000 | \$10,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$700 | \$700 |
| | Subtotal: | | | | | | \$10,700 |
| 10.2 | Mine Camp and Related Infrastructure (Expanded) | | | | | | |
| | Disconnect Services | Trades Labourer | hrs | 120 | \$83 | \$9,960 | \$9,960 |
| | Remove salvageable equipment | General Labourer | hrs | 1056 | \$47 | \$49,632 | \$49,632 |
| | Dismantle buildings | General Labourer | hrs | 1800 | \$47 | \$84,600 | \$84,600 |
| | | Cat 235 Excavator | hrs | 180 | \$250 | \$45,000 | \$129,600 |
| | Haul scrap to Solid Waste Facility | Haul Truck D250E | hrs | 30 | \$250 | \$7,500 | |
| | | Cat 235 Excavator | hrs | 15 | \$250 | \$3,750 | \$11,250 |
| | Reclaim Septic System | General Labourer | hrs | 15 | \$47 | \$705 | |
| | | Cat 235 Excavator | hrs | 3 | \$250 | \$750 | \$1,455 |
| | Site Clean-Up | General Labourer | hrs | 750 | \$47 | \$35,250 | \$35,250 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$16,600 | \$16,600 |
| | Subtotal: | | | | | with 25% salvage value | \$190,310 |
| 10.3 | Explosives Plant Site | | | | | | |
| | Remove salvageable equipment | General Labourer | hrs | 100 | \$47 | \$4,700 | |
| | | Trades Labourer | hrs | 50 | \$83 | \$4,150 | \$8,850 |
| | Dismantle buildings | General Labourer | hrs | 200 | \$47 | \$9,400 | |
| | | Cat 235 Excavator | hrs | 30 | \$250 | \$7,500 | \$16,900 |
| | Disconnect Services | Trades Labourer | hrs | 20 | \$83 | \$1,660 | \$9,160 |
| | Crane services | 30 ton Crane | hrs | 5 | \$190 | \$950 | \$2,610 |
| | Haul scrap to Solid Waste Facility | Haul Truck D250E | hrs | 30 | \$250 | \$7,500 | |
| | | Cat 235 Excavator | hrs | 10 | \$250 | \$2,500 | \$10,000 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$2,685 | \$2,685 |
| | Subtotal: | | | | | with 25% salvage value | \$37,654 |
| 10.4 | Exploration Sites and Trails | | | | | | |
| | Natural revegetation | n/a | n/a | | | | |
| | Subtotal: | | | | | | \$0 |
| 10.5 | Land Treatment Facility | | | | | | |
| | Prepare and submit closure plan | Misc | l.s. | | \$2,000 | \$2,000 | \$2,000 |
| | Characterize final soil hydrocarbon concentrations | Misc | l.s. | | \$4,000 | \$4,000 | \$4,000 |
| | Recontour | D9H Dozer | hrs | 3 | \$350 | \$1,050 | \$1,050 |
| | Load, haul and place overburden cover from nearby source | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | |
| | | D9H Dozer | hrs | 6 | \$350 | \$2,100 | \$12,100 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$1,341 | \$1,341 |
| | Subtotal: | | | | | | \$20,491 |
| 10.6 | Solid Waste Facility | | | | | | |
| | Prepare detailed closure plan | Misc | l.s. | | \$2,000 | \$2,000 | \$2,000 |
| | Characterize final waste area | Misc | l.s. | | \$2,000 | \$2,000 | \$2,000 |
| | Remove recyclables and special waste materials | Tractor Trailer (lowbed) | hrs | 40 | \$160 | \$6,400 | \$6,400 |
| | Recontour | D9H Dozer | hrs | 2 | \$350 | \$700 | \$700 |
| | Load, haul and cover with adjacent fill and place overburden cap | Cat 235 Excavator | hrs | 20 | \$250 | \$5,000 | |
| | | Haul Truck D250E | hrs | 20 | \$250 | \$5,000 | |
| | Compaction of cover | D9H Dozer | hrs | 6 | \$350 | \$2,100 | \$12,100 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$1,624 | \$1,624 |
| | Subtotal: | | | | | | \$24,824 |
| 10.7 | Site Roads | | | | | | |
| | Recontour | Cat 235 Excavator | hrs | 37.5 | \$250 | \$9,375 | \$9,375 |
| | Scarify | Cat 16H Grader | hrs | 50 | \$250 | \$12,500 | \$12,500 |
| | Project Management & Engineering | 7% of Total Cost | % | | 7.00% | \$1,531 | \$1,531 |
| | Subtotal: | | | | | | \$23,406 |
| Total Estimated Cost in Reclaiming Miscellaneous Sites and Facilities | | | | | | | \$307,385 |
| Note: | | | | | | | |

**Table A-11
Reclamation Research and Revegetation, Estimated Closure Costs - 2012**

| Item No. | Work Item Description | Units | Quantity | Unit Rates | Cost | Total |
|---|--|-------|----------|------------|-----------|--------------------|
| 11.1 | REVEGETATION ACTIVITIES | | | | | |
| 11.1.0 | Determination of Revegetation Plan for Current Site | | | | | |
| | Issuance of a plan for all site areas for regulatory review and approval | Misc | 1 | | \$20,000 | \$20,000 |
| | Sub-Total | | | | | \$20,000 |
| 11.1.1 | Main and Southwest Dumps (total surface area of 107.3 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 107.3 | \$2,500 | \$268,250 | |
| | Re-seed and fertilize (1/2 of total area) | ha | 53.7 | \$2,500 | \$134,125 | |
| | Re-forest | ha | 107.3 | \$1,750 | \$187,775 | \$590,150 |
| | Sub-Total | | | | | \$590,150 |
| 11.1.2 | Ice-Rich Overburden Dump (toe berm surface area of 6.1ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 6.1 | \$2,500 | \$15,250 | |
| | Re-seed and fertilize (1/2 of total area) | ha | 3.1 | \$2,500 | \$7,625 | |
| | Re-forest | ha | 6.1 | \$1,750 | \$10,675 | \$33,550 |
| | Sub-Total | | | | | \$33,550 |
| 11.1.3 | Reclamation Overburden Dump (total surface area of 31.8 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 31.8 | \$2,500 | \$79,500 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 15.9 | \$2,500 | \$39,750 | |
| | Re-forest | ha | 31.8 | \$1,750 | \$55,650 | \$174,900 |
| | Sub-Total | | | | | \$174,900 |
| 11.1.4 | Ore Stockpiles and Pads (final total surface area of 31.6 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 31.6 | \$2,500 | \$79,000 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 15.8 | \$2,500 | \$39,500 | |
| | Re-forest | ha | 31.6 | \$1,750 | \$55,300 | \$173,800 |
| | Sub-Total | | | | | \$173,800 |
| 11.1.5 | Mill Valley Fill and DSTSF Front Face (disturbed area of 23.9 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 23.9 | \$2,500 | \$59,750 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 12.0 | \$2,500 | \$29,875 | |
| | Re-forest | ha | 23.9 | \$1,750 | \$41,825 | \$131,450 |
| | Sub-Total | | | | | \$131,450 |
| 11.1.6 | Contractor's Shop and Office Area (disturbed area of 2.5 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 2.5 | \$2,500 | \$6,250 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 1.3 | \$2,500 | \$3,125 | |
| | Re-forest | ha | 2.5 | \$1,750 | \$4,375 | \$13,750 |
| | Sub-Total | | | | | \$13,750 |
| 11.1.7 | Tailings Surface Area (current disturbed area of 20.9 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 30.2 | \$2,500 | \$75,500 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 15.1 | \$2,500 | \$37,750 | |
| | Re-forest | ha | 30.2 | \$1,750 | \$52,850 | \$166,100 |
| | Sub-Total | | | | | \$166,100 |
| 11.1.8 | Main Water Dam (total dam surface area 3.3 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 3.3 | \$2,500 | \$8,250 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 1.7 | \$2,500 | \$4,125 | |
| | Re-forest | ha | 3.3 | \$1,750 | \$5,775 | \$18,150 |
| | Sub-Total | | | | | \$18,150 |
| 11.1.9 | Mill Area, Fuel Storage & Crusher (total surface area of 10.8 ha) | | | | | |
| | Seed and Fertilize w/ labour | ha | 10.8 | \$2,500 | \$27,000 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 5.4 | \$2,500 | \$13,500 | |
| | Re-forest | ha | 10.8 | \$1,750 | \$18,900 | \$59,400 |
| | Subtotal: | | | | | \$59,400 |
| 11.1.10 | Haul Road (total surface area of 15 ha) | | | | | |
| | | ha | 15.0 | \$2,500 | \$37,500 | \$37,500 |
| 11.1.11 | Underground Portal Excavation (total surface area of 6.1 ha) | | | | | |
| | Seed and Fertilize w/ labour | ha | 6.1 | \$2,500 | \$15,250 | |
| | Re-seed and fertilize, one time (1/2 of total area) | ha | 3.1 | \$2,500 | \$7,625 | |
| | Re-forest | ha | 6.1 | \$1,750 | \$10,675 | \$33,550 |
| | Subtotal: | | | | | \$33,550 |
| 11.1.12 | Miscellaneous Sites - Camp, Airstrip, Waste Facilities, Explosives Site (area for reclamation of 14 ha) | | | | | |
| | Seed and fertilize w/ labour | ha | 14.0 | \$2,500 | \$35,000 | |
| | Re-seed and fertilize (1/2 of total area) | ha | 7.0 | \$2,500 | \$17,500 | |
| | Re-forest | ha | 14.0 | \$1,750 | \$24,500 | \$77,000 |
| | Subtotal: | | | | | \$77,000 |
| 11.1.13 | Access Road | | | | | |
| | Scenario 1 - No Deactivation | | | | | |
| | No revegetation | | | | | |
| | Subtotal: | | | | | \$0 |
| | Scenario 2 - Deactivate from Minto Creek to Mine Site (11 km) | | | | | |
| | Revegetate and fertilize banks at culvert excavations, including labour | ha | 2.0 | \$2,500 | \$5,000 | \$5,000 |
| | Subtotal: | | | | | \$5,000 |
| | Scenario 3 - Deactivate Entire Road (27 km) | | | | | |
| | Hydroseed roadside banks & slopes (~0.25ha per km of road, along 50% of its length) | ha | 3.4 | \$4,000 | \$13,600 | \$13,600 |
| | Revegetate and fertilize banks at culvert excavations, including labour | ha | 6.0 | \$2,500 | \$15,000 | \$15,000 |
| | Subtotal: | | | | | \$28,600 |
| Total Estimated Cost for Reclamation Research and Revegetation | | | | | | |
| | Scenario 1 - No Access Road Deactivation | | | | | \$1,529,300 |
| | Scenario 2 - Deactivate Access Road from Minto Creek to Mine Site | | | | | \$1,534,300 |
| | Scenario 3 - Deactivate Entire Access Road | | | | | \$1,557,900 |

**Table A-12
Site Management and Monitoring, Estimated Closure Costs - 2012**

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|--|--|--------------------|-------------|-----------|------------|-------------|--------------------|
| | SITE MANAGEMENT | | | | | | |
| 12.1 | Onsite Management | | | | | | |
| | Project Management and Engineering - Included in PME Costs in each Closure Component | | | | | | |
| | Pickup truck | Light truck | monthly | 50 | \$2,500 | \$125,000 | \$125,000 |
| | Sundry equipment maintenance | Unit Cost Basis | yearly | 10 | \$5,000 | \$50,000 | \$50,000 |
| | Power and heat | Unit Cost Basis | monthly | 30 | \$5,500 | \$165,000 | \$165,000 |
| | General Administrative expenses | Unit Cost Basis | monthly | 50 | \$2,000 | \$100,000 | \$100,000 |
| | Camp Costs (5 year period) | Unit Cost Basis | man-day | 6,138 | \$70 | \$429,660 | \$429,660 |
| | Subtotal: | | | | | | \$869,660 |
| 12.2 | Transport Costs | | | | | | |
| | Employee transport costs | Unit Cost Basis | monthly | 50 | \$3,000 | \$150,000 | \$150,000 |
| | Barge operating costs | Unit Cost Basis | monthly | 20 | \$10,000 | \$200,000 | \$200,000 |
| | Subtotal: | | | | | | \$350,000 |
| 12.3 | Water Treatment | | | | | | |
| | Labour - Water Treatment Operators (5 years @ 4 mo/yr) | Unit Cost Basis | monthly | 20 | \$31,584 | \$631,680 | \$631,680 |
| | Cost per cubic metre of compliant water (5 years @ 360,000 m3/yr) | | cu.m | 1,800,000 | \$1.38 | \$2,484,000 | \$2,484,000 |
| | Subtotal: | | | | | | \$3,115,680 |
| 12.4 | Water Quality Monitoring (Post Mine Closure) (50:50 sampling labour/analyses costs split) & Reporting | | | | | | |
| | Years 1-5 (monthly during open season) | Misc. | monthly | 30 | \$4,000 | \$120,000 | |
| | Years 6-10 (quarterly - spring/summer/fall) | Misc. | quarterly | 15 | \$4,000 | \$60,000 | |
| | Years 11-15 (once annually - post spring freshet) | Misc. | yearly | 5 | \$4,000 | \$20,000 | \$200,000 |
| | Disbursements (non-labour/non-analytical) | Misc. | yearly | 15 | \$4,000 | \$60,000 | \$60,000 |
| | LTF Monitoring and Maintenance (years 1-5) | Misc. | yearly | 5 | \$4,000 | \$20,000 | \$20,000 |
| | Enhanced Groundwater/Foundation monitoring below DSTF and Waste Rock Dumps | Misc. | yearly | 15 | \$15,000 | \$225,000 | \$225,000 |
| | Geo-technical Inspections (annually yrs 1-5, bi-annual yrs 6-15) | Misc. | each | 10 | \$15,000 | \$150,000 | \$150,000 |
| | Reclamation Inspections (annually yrs 1-5, bi-annual yrs 6-15) | Misc. | each | 10 | \$7,500 | \$75,000 | \$75,000 |
| | Biological Monitoring - Closure implementation | Misc. | I.s. | 1 | \$10,000 | \$10,000 | |
| | Years 1-5 (Annually) | Misc. | yearly | 5 | \$4,000 | \$20,000 | |
| | Years 6-10 (Annually) | Misc. | yearly | 5 | \$4,000 | \$20,000 | |
| | Years 11-15 (Every two years) | Misc. | bi-annual | 3 | \$3,500 | \$10,500 | \$60,500 |
| | Subtotal: | | | | | | \$790,500 |
| 12.5 | Post Closure Maintenance - Main Dam | | | | | | |
| | Monitoring of piezometers, thermistors | | | | | | |
| | Years 1-5 (quarterly) | Misc. | quarterly | 20 | \$3,000 | \$60,000 | |
| | Years 6-10 (bi-annually) | Misc. | bi-annually | 8 | \$3,000 | \$24,000 | |
| | Years 11-15 (annually) | Misc. | annual | 5 | \$2,500 | \$12,500 | |
| | Annual Inspection and report | Misc. | annual | 15 | \$3,000 | \$45,000 | |
| | Carry out inspection recommendations/maintenance | Misc. | annual | 15 | \$10,000 | \$150,000 | \$291,500 |
| | Misc. maintenance work related to the site after closure (Yr1-5) | Misc. | yearly | 5 | \$10,000 | \$50,000 | \$50,000 |
| | Misc. maintenance work related to the site after closure (Yr6-15) | Misc. | per year | 10 | \$5,000 | \$50,000 | \$50,000 |
| | Subtotal: | | | | | | \$391,500 |
| 12.6 | Ultimate Removal of wells and instrumentation | Misc. | unit basis | | \$15,000 | | \$15,000 |
| Total Estimated Cost for Post Closure Site Management | | | | | | | \$5,532,340 |
| Note: | | | | | | | |

Table A-13
Supporting Studies - 2012

| Item No. | Work Item Description | Equipment / Labour | Units | Quantity | Unit Rates | Cost | Total |
|--|---|--------------------|-------|----------|------------|-----------|------------------|
| 13.1 | Permafrost Foundation Monitoring | | | | | | |
| 13.1.1 | Enhanced subsurface monitoring program in and below waste rock dumps (WRD) | | | | | | |
| | Preparing detailed monitoring program | Misc. | I.s. | 1 | \$8,000 | \$8,000 | |
| | Enhanced Adaptive Management Plan for WRDs | Misc. | I.s. | 1 | \$8,000 | \$8,000 | \$8,000 |
| 13.1.2 | Enhanced subsurface monitoring program in and below DSTSF | | | | | | |
| | Preparing detailed monitoring program | Misc. | I.s. | 1 | \$4,000 | \$4,000 | |
| | Enhanced Adaptive Management Plan for DSTSF | Misc. | I.s. | 1 | \$4,000 | \$4,000 | \$4,000 |
| | Sub-Total | | | | | | \$12,000 |
| 13.2 | Kinetic Tailings and Waste Rock Materials Testing | | | | | | |
| 13.2.1 | Monitoring program and field test to enhance long term water quality prediction related to drystack tailings facility and materials in WRDs | | | | | | |
| | Preparing composite sample over several months of production | Misc. | I.s. | 1 | \$5,000 | \$5,000 | |
| | undertaking field test | Misc. | I.s. | 1 | \$12,000 | \$12,000 | |
| | Initiate parallel laboratory analysis | Misc. | I.s. | 1 | \$10,000 | \$10,000 | |
| | Monitoring of field apparatus (columns) | Misc. | I.s. | 1 | \$4,000 | \$4,000 | |
| | Reporting | Misc. | I.s. | 1 | \$5,000 | \$5,000 | \$36,000 |
| | Sub-Total | | | | | | \$36,000 |
| 13.3 | Other Adaptive Management Plans Required | | | | | | |
| | Changes in WTP input water quality or quantity | Misc. | I.s. | 1 | \$22,500 | \$22,500 | \$22,500 |
| | Sludge Management Plan - for material from WTP | Misc. | I.s. | 1 | \$15,000 | \$15,000 | \$15,000 |
| | Site testing ML ARD | Misc. | I.s. | 1 | \$45,000 | \$45,000 | \$45,000 |
| | Groundwater Management Plan | Misc. | I.s. | 1 | \$15,000 | \$15,000 | \$15,000 |
| | Long term reclamation of contaminated soils | Misc. | I.s. | 1 | \$22,500 | \$22,500 | \$22,500 |
| | Physical Monitoring program - prior to closure | Misc. | I.s. | 1 | \$60,000 | \$60,000 | \$60,000 |
| | Modeling of pit lake water qualities prior to final flooding | Misc. | I.s. | 1 | \$22,500 | \$22,500 | \$22,500 |
| | Sub-Total | | | | | | \$202,500 |
| 13.4 | Closure Specific Studies and Field Trials | | | | | | |
| | Main Site Discharge Channel Geotechnical Design and Stability Evaluation | Engineering/Design | I.s. | 1 | \$30,000 | \$30,000 | \$30,000 |
| | Passive Treatment Evaluations | Engineering/Design | I.s. | 1 | \$100,000 | \$100,000 | \$100,000 |
| | Engineered Cover Evaluations | Engineering/Design | I.s. | 1 | \$75,000 | \$75,000 | \$75,000 |
| | Site contamination surveys (pre \$35K, post \$20K) | | I.s. | 1 | \$55,000 | \$55,000 | \$55,000 |
| | Sub-Total | | | | | | \$260,000 |
| Total Estimated Cost for Supporting Studies | | | | | | | \$510,500 |
| Note: | | | | | | | |