ARCADIS Design & Consultancy for natural and built assets

INDIGENOUS AND NORTHERN AFFAIRS CANADA

RECLAIM ESTIMATE FOR WHALE TAIL PIT PROJECT

Water Licence Application

2AM-WTP----

Revision 3 – 8 August 2017

702615-002

RECLAIM ESTIMATE FOR WHALE TAIL PIT PROJECT (Revision 3)

Water Licence Application

2AM-WTP----

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8 August, 2017

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Draft	0	27 Feb. 2017	40	Quantum of Security Estimate for Whale Tail Project	Tony Brown
Final	1	27 March 2017	40	Quantum of Security Estimate for Whale Tail Project	Tony Brown
Update	2	12 July 2017	40	Quantum of Security Estimate for Whale Tail Project	Tony Brown
Update	3	8 August 2017	40	Quantum of Security Estimate for Whale Tail Project	Tony Brown

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TABLES

APPENDICES

ACRONYMS AND ABBREVIATIONS

Agnico	Agnico Eagle Mines Limited
Arcadis	Arcadis Canada Inc.
ESA	Environmental Site Assessment
ICRP	Interim Closure and Reclamation Plan
INAC	Indigenous and Northern Affairs Canada
IOL	Inuit Owned Lands
NIRB	Nunavut Impact Review Board
NPAG	Non-Potentially Acid Generating
NWB	Nunavut Water Board
PAG	Potential Acid Generating
TSF	Tailings Storage Facility
WRSF	Waste Rock Storage Facility

EXECUTIVE SUMMARY

Further to the request of INAC, Arcadis was retained to complete an independent quantum of security estimate for the proposed Whale Tail mine development project as part of a water licence application request set forth by Agnico. Agnico has applied to the NWB for a Type A Water Licence (No. 2AM-WTP----) to include mining of the Whale Tail Pit including the construction/operation of associated infrastructure. At the request of the Nunavut Water Board the security estimate for this site is to now include for the All-Weather Road to be constructed between the Meadowbank and Whale Tail facilities. This application is separate from the existing water licences for, the Advanced Exploration Camp and the Underground Mine proposal on the Amaruq Property. Furthermore, the components of the closure work being done at the Meadowbank mine as part of the Whale Tail Pit development are not included in the security estimate outlined herein. It is understood the quantum of security to cover those work items, such as tailings management and capping at the Meadowbank mine, will be included in an amendment to the security for the Meadowbank mine.

In order to prepare the quantum of security estimate, Arcadis reviewed the following documents;

- Agnico Eagle Meadowbank Division, Whale Tail Pit, Interim Closure and Reclamation Plan, June 2016 Version WT;
- RECLAIM ESTIMATE for the Whale Tail Pit Project, as prepared by Golder Associates and Agnico dated 25 June 2016;
- Volume 1 – Project Description, Whale Tail Pit Project Meadowbank Division dated May 2016;
- RECLAIM ESTIMATEs for the Amaruq Exploration Camp and Underground Mine proposal and the All-Weather Road proposal dated September 2016;
- Addendum to Aginco Eagle Mines Whale Tail FEIS Appendix 6-H. Sensitivity Analysis on Water Quality Modelling in Support of Response to Technical Commitments 30, 36, 37 and 42 and intervenor Comments ECCC#15 and INAC TRC #3 and #5, on the Water Licence A Application to the Nunavut Water Board dated 10 July 2017 (Golder July 2017).

Further to a review meeting with representatives of AEM, the Kivalliq Inuit Association (KIA), INAC and Arcadis held in Gatineau Quebec on 19 May 2017 some costing elements were reviewed and amended. Additional information discussed during this meeting and within the subsequent document is provided herein under the respective subject headings.

In preparing the estimate, Arcadis used the latest version of the RECLAIM model as provided by INAC. In general, the material, equipment and labour quantities, and reclamation activities outlined in the Interim Closure and Reclamation Plan, as prepared

by Golder Associates and Agnico, were used in preparing this quantum of security estimate.

A summary of the direct and indirect costs with a comparison to the Agnico RECLAIM estimate (as amended further to the 19 May 2017 meeting and review of the Golder 2017 addendum document) is provided in Table 1. Based on the outcome of the Arcadis review, it is recommended that the quantum of security estimate for the Whale Tail Pit project should be set at $28,239,526.

TABLE 1: SUMMARY OF COSTS

Cost Items	Agnico RECLAIM	Arcadis RECLAIM
CAPITAL COSTS		
Open Pit	$4,050,038	$4,050,224
Rock Pile	$2,923,088	$4,065,088
Building and Equipment	$1,038,088	$2,391,931
Chemicals and Contaminated Soil Management	$178,853	$662,700
Surface and Groundwater Management	$482,595	$482,595
Interim Care and Maintenance	$0	$1,539,601
SUB-TOTAL	$8,672,662	$13,192,138
INDIRECT COSTS		
Mobilization/Demobilization	$5,420,771	$5,669,900
Post-Closure Monitoring and Maintenance	$3,131,499	$5,156,003
Engineering (5%)	$433,633	$659,607
Project Management (5%)	$433,633	$659,607
Health and Safety Plans/Monitoring & QA/QC (1%)	$86,727	$131,921
Bonding/Insurance (1%)	$86,727	$131,921
Contingency (20%)	$1,734,532	$2,638,428
Market Price Factor Adjustment	$0	$0
SUB-TOTAL	$11,327,522	$15,047,388
TOTAL COSTS	$20,000,185	$28,239,526

1 INTRODUCTION

1.1 General

Arcadis was retained by INAC to complete a quantum of security evaluation for the Whale Tail Pit Project. The security estimate was to be prepared based on the existing information provided in the proponent's water licence amendment application.

1.2 Background

Agnico Eagle Mines Limited – Meadowbank Division (Agnico) is proposing to develop Whale Tail Pit, a satellite deposit located on the Amaruq property, to continue mine operations and milling at Meadowbank Mine. Concurrent with the reconsideration of the Project Certificate by the NIRB, Agnico is seeking a new water licence (2AM-WTP----) to include mining of ore at the Whale Tail Pit and construction and operations of associated infrastructure from the NWB.

Agnico has provided financial security for the Meadowbank mine, the All-weather road between the Meadowbank mine and the Amaruq property, and for the Amaruq mine/exploration camp as part of other water licences. At the request of the NWB the security for the All-weather Road has now been incorporated into the security for the Whale Tail project. Exclusive of the All-weather road security, the current estimate focuses exclusively on the incremental components associated with the Whale Tail Project.

As part of the Whale Tail Pit Project, ore would be mined from an open pit and segregated by grade with high grade ore first being transported to the mill at Meadowbank for processing and lower grade ore being transported to the mill during the later stages of the pit development. Some crushing would be done on the Whale Tail property; however, all tailings will be managed at the Meadowbank TSF while waste rock from the Whale Tail property will be managed on site. In order to facilitate the transfer of ore to the mill, Agnico is proposing to upgrade the current road design from a 6.5 m wide road to a 9.5 m wide road. Existing road designs already considered this possibility during the design of culverts and bridges and, as such, no additional infrastructure design work is required in this regard.

Agnico expects to begin construction in 2018 and ultimately have full production in 2019. The operational phase of the pit will span three to four years. Mining activities are expected to end in 2021, with milling operations completed by the end of 2022. The reclamation phase of the mine will begin in 2022 with the flooding of the pit which is expected to take seven to eight years (done in 2030). At this point, the post-closure monitoring will begin with the long-term monitoring expected to extend to 2035. More details on the mine life cycle are provided in the ICRP.

It is understood that Agnico proposes to increase the size of the pit by 5.8 Mm^3 to help address concerns with arsenic leaching into the pit water post-closure and has used this design in the sensitivity modelling done in 2017. It is understood that the increase in the

size of the pit will not impact the timeline for the operation, closure and post-closure events on site.

1.3 Scope of Work

The scope of work (SOW) developed by INAC for the quantum of security evaluation is outlined in Section 2 of this report. In general, the SOW for this task was to review existing documentation on the closure and reclamation of the Whale Tail Pit Project and prepare a quantum of security estimate based on the RECLAIM Version 7.0 model for the costing of mine reclamation programs.

2 METHODOLOGY

2.1 General Approach

Arcadis' approach to this quantum of security review consisted of the following:

- A review of the Whale Tail Pit ICRP and Project Description as prepared by Agnico with their consultant Golder Associates;
- A review of the existing Amaruq quantum of security RECLAIM estimates including the all-weather road RECLAIM estimate;
- A review of the Golder FIES addendum (sensitivity assessment – Golder, July 2017); and
- A review of the RECLAIM Version 7.0 Manual.

The security review was completed considering the application of the financial security provisions of the Mine Site Reclamation Policy for Nunavut (INAC, 2002) summarized as follows:

- Total financial security for final reclamation should be equal to the total outstanding reclamation liability for land and water combined. The financial security should be sufficient to cover the highest liability over the applicable time period.
- Reclamation cost estimates for financial security purposes should be based on the cost of having the reclamation work completed by a third-party contractor if the operator defaults.
- Estimates should include a contingency that is appropriate to the particular work to be undertaken.
- A recognized methodology such as RECLAIM or some other appropriate model should be used to calculate reclamation costs.
- Consideration should be given to alternate or innovative forms of security.

- Financial security requirements should be clearly set out in water licences, land leases and other regulatory instruments. Alternatively, the security requirements can be specified within a separate agreement if this approach is more applicable.
- Mine operators should be credited for approved progressive reclamation, and the value of financial security required should be adjusted in a timely fashion.

Arcadis initially completed its quantum of security estimate using the Agnico RECLAIM estimate and reviewed the differences between the two to make sure the Arcadis assumptions were reasonable and consistent with other RECLAIM estimates done on Agnico properties in the Baker Lake and Rankin Inlet areas.

2.2 Limitations

The quantum of security estimate is based on the information provided by INAC to Arcadis and, as such, the assessment is primarily based on the ICRP prepared by Agnico for the Whale Tail Pit program. Should any of the underlying assumptions outlined in the ICRP change over the lifetime of the mine site, then the quantum of security estimate should be reviewed in light of any new information. As with all NWB water licences, the proponent will have the opportunity to amend the quantum of security based on progressive reclamation works.

Furthermore, given the water licence currently held on the Amaruq property, it may be more expedient to have one single security held for this property thus avoiding any potential confusion with respect to which security would be pulled in the event that only part of the Meadowbank/Whale Tail Pit mine sites were abandoned.

3 FINDINGS

3.1 General

The RECLAIM worksheets detailing the direct and indirect costs used to develop the quantum of security estimate are provided in Appendix A. A copy of the RECLAIM estimate as prepared by Agnico (version prepared 16 June 2017) is provided in Appendix B. Further discussion on each major cost item is provided herein, organized based on the RECALIM 7.0 layout developed and used by INAC.

3.2 Direct Costs

The Direct Costs for the Arcadis RECLAIM estimate are provided in the RECLAIM worksheets found in Appendix A. The Land and Water Liability costs are presented in these worksheets. In summary, the Land Liability has been calculated to be $2,879,660 while the Water Liability has been calculated to be $10,312,479. Given that the site is

completely contained within IOL lands, we have not provided a breakdown of the costs into IOL versus Crown land even though there is a small component of the work (i.e. all-weather road reclamation) that could be considered to be on Crown Land. The ratio of work originally used to calculate the ratio of costs for the all-weather road between the Meadowbank mine and the Amaruq property could be applied here should the Crown wish. The estimated value of the reclamation work that would be completed on IOL lands is approximately $875,000.

3.2.1 Open Pit

The closure of the open pit will entail the flooding of the pit using natural inflows and the pumping of water originally displaced from the section of Whale Tail Lake. From the ICRP and the modelling done extending the north pit wall, it is understood that the flood back work will take up to 8 years to complete. Even though, the proposed size of the pit has increased by 20% (Golder, 2017), for the purposes of this estimate we have assumed that the period of the flood back remains at eight years. In addition to the flooding, the work will include the closure of access roads to the pit, signage and the removal of pumps and piping from within the pit. The work under this cost item also includes the completion of a stability and setback study.

Prior to proposed amendment increasing the size of the pit by 5.8 Mm^3, the Arcadis estimate was in general agreement with the Agnico estimate for this work. An additional five signs have been added to the RECLAIM cost.

Note that the costs for the breaching of the dikes on site is covered under the Water Management costs. Furthermore, it is understood that the security for the closure of the local borrow sources that had been included in the RECLAIM estimate for the All-weather Road has now been included in this RECLAIM estimate.

3.2.2 Underground Mine

Not applicable to this water licence application. It has been assumed that the security for the reclamation work related to the underground exploration activities has been already retained as part of an earlier water licence application for the Amaruq property.

3.2.3 Tailings Facility

Not applicable to this water licence application. It has been assumed that the security for the reclamation work related to the tailings facility will be already retained as part of the Meadowbank mine property security. While it is unclear how all the tailings from the Whale Tail Pit program will fit within the existing Meadowbank tailings storage area, it has been assumed by Arcadis that Agnico will provide the necessary information confirming that sufficient storage capacity exists within the Meadowbank TSF and that the security

amounts currently in place for the Meadowbank mine will cover any reclamation work that may be required at the Meadowbank TSF.

3.2.4 Waste Rock Pile

Under the ICRP, the closure of the waste rock pile will take place progressively with sections left open in order to accommodate the decommissioning of the water treatment plant and associated piping and diffuser. Per the ICRP, the quantity of NPAG waste rock was based on a 4 m thick cap, however, no details were provided on the area of the WRSF that will remain to be capped at the end of mine operations. Back calculating from the information provided in the Agnico estimate, it is assumed that 16.7 ha of the WRSF would require capping. This is considered reasonable for this size of operation however further to the recently completed sensitivity analysis (Golder, 2017) it is understood the height of the WRSF will increase by 15 m to accommodate the additional waste rock from the pit enlargement works. This will result in an increase of approximately 240,000 m^3 to the volume of waste rock required for the capping works.

In addition to the placement of NPAG waste rock, the cost associated with this task include for the installation of thermistors. In the absence of a definitive number of thermistors, it has been assumed that five to seven thermistors will be installed and, as such, the allowance of $50,000 provided by Agnico is reasonable. The cost for this work has been increased by a factor of 1.2 to account for the increased depth of the thermistors required to address the increased height of the WRSF.

Due to the uncertainties with the quality of the waste rock being excavated from the pit Arcadis has increased the budget for waste rock sampling and testing by $50,000. This additional testing is required to address concerns with the arsenic that may leach from the WRSF capping material.

3.2.5 Buildings and Equipment

For the purposes of the Arcadis estimate, the building footprint areas provided by Agnico were used to estimate the building removal costs and grading and contouring of the waste rock pads underlying the buildings. The incremental area of road surface as provided by Agnico was also included in the Arcadis estimate. In addition to these cost items, costs were also included for; an assumed area of the laydown area that were part of common areas not included in the building area footprints; the decommissioning of seven culverts shown in the ICRP as being present; the scarifying of local roads; and the removal of the explosives storage containers.

Prior to the additional of the costs associated with the All-weather Road reclamation work the additional work items listed within this part of the RECLAIM estimate resulted in a nominal difference in the quantum of security for this work, $13,663 when compared to the Agnico estimate. Pursuant to the request of the NWB the current Arcadis estimate includes for the removal of 153 culverts at the rate provided by AEM for this work under

the AWR estimate, the removal of 11 bridges and scarifying the entire All-weather Road surface at the lower scarification rate provided by RECLAIM, and the reclamation works associated with the closure of the borrow sources along the All-weather Road. More details are provided in the RECLAIM worksheet in Appendix A.

3.2.6 Chemicals and Contaminated Soil Management

The work under this task includes; completing a Phase I/II ESA; decontaminating the power house and fuel storage facilities; removal of hazardous wastes (i.e. batteries, waste fuel/oil, glycol, etc.); and management of petroleum hydrocarbons. For the Arcadis estimate, the work also included the following activities not included in the Agnico estimate; decontamination of the explosives storage areas; removal and off-site disposal of waste oils and fuels (based on the quantities used in the Amaruq mine estimate); and management of a large volume of light fraction petroleum hydrocarbons (i.e. 2,000 m^3) as assumed for the Amaruq mine with a 10% heavy oil fraction that would require off-site disposal. It is acknowledged that Agnico's estimate is based on their experience at Meadowbank however it is the opinion of Arcadis that the potential for a larger spill of petroleum hydrocarbon remains (as noticed in the Meadowbank soil volume for 2013) and as such the conservative approach used by Arcadis to calculate this liability remains as previously noted.

The additional work items resulted in an increase of $483,847 when compared to the Agnico estimate. More details are provided in the RECLAIM worksheet in Appendix A.

3.2.7 Surface and Groundwater Management

The work included under this task entailed; the breaching of the Whale Tail, Northeast, Mammoth and WRSF dikes and the saddle dam; the removal of sediment from the WRSF pond; backfilling and contouring of containment ditches; and decommissioning of the freshwater supply system. The material quantities used by Arcadis in its estimate for the removal and/or relocation on site material are the same as those presented by Agnico in their estimate.

The treatment and management of water during the Closure and Post-Closure phases is covered under the Post-Closure and Interim Care and Maintenance Costs.

No concerns with the quantities or unit rates provided by Agnico for this work were identified by Arcadis.

3.2.8 Interim Care and Maintenance

Consistent with the approach used by INAC for other mine properties, Arcadis used a five-year care and maintenance period for this estimate. The tasks to be completed under

this activity are consistent with those used in the development of Amaruq security estimates. The inclusion of the All-weather Road security to the overall Whale Tail Pit Project security has resulted in a modest increase of $3,500 per annum to cover SNP/AEMP water sampling & reporting as well as geotechnical assessments. No incremental costs have been assigned for vehicles or labour as it has been assumed there is sufficient allowance in the existing labour time to cover the additional work related to the All-weather Road.

This cost was not carried by Agnico in their RECLAIM estimate.

3.2.9 Summary of Direct Cost Review

The net result of the Arcadis assessment was a total capital or direct cost of $13,192,138 as compared to a cost of $8,672,662 reported by Agnico. The $4,519,476 difference was primarily the result of higher costs calculated by Arcadis for the liabilities associated with the mitigation of potential petroleum hydrocarbon concerns and interim care and maintenance costs and the inclusion of the All-weather Road reclamation costs not included by Agnico.

3.3 Indirect Costs

The Indirect Costs for the Arcadis RECLAIM estimate are provided in the RECLAIM worksheets found in Appendix A. The Land and Water Liability costs are presented in these worksheets. In summary, the Land Liability has been calculated to be $3,284,635 while the Water Liability has been calculated to be $11,762,753. Given that the site is completely contained within IOL lands, we have not provided a breakdown of the costs into IOL versus Crown land even though there is a component of the work (i.e. all-weather road reclamation) that could be considered to be on Crown Land. The ratio of work originally used to calculate the ratio of costs for the all-weather road between the Meadowbank mine and the Amaruq property could be applied here should the Crown wish. Based on the information previously provided in the All-weather Road reclamation estimate the value of the IOL lands work would be on the order of $875,000.

3.3.1 Mobilization and Demobilization

For the purposes of the Arcadis security assessment, it was assumed that equipment would need to be mobilized to site in order to complete the site closure and reclamation works. The equipment for the reclamation work would be sourced from Baker Lake. The results of the earlier Amaruq RECLAIM estimates were used to generate the costs for this activity.

This is a departure from the assumptions made by Agnico which assumed equipment would be on site to complete the closure and reclamation work.

In general, the costs for the movement and housing of staff during the closure and reclamation works were consistent with those used by Agnico. Small differences were calculated where Agnico used partial numbers to calculate the number of person trips and man hours for the mobilization of workers whereas Arcadis used whole numbers (i.e 8.6 versus 9).

In addition to the costs noted above there is a nominal increase in costs associated with the mobilization and demobilization of a crew for the All-weather Road reclamation works. The incremental cost was only for the travel labour and camp costs, and did not include equipment (pick-up truck) required to mobilize to and from site.

3.3.2 Post-Closure Monitoring and Maintenance

The Post-Closure Monitoring and Maintenance costs are based on 25 years of monitoring for geotechnical and environmental concerns. The 25 years is based on current INAC practice and has been set to protect against uncertainties related to the long-term water quality of the site. Those uncertainties include but are not limited to the effectiveness of the proposed waste rock cover and the potential for metal loadings to surface water receivers to be higher than currently predicted. Given there is five years of monitoring and post-closure water treatment covered under the Interim Care and Maintenance security, and the uncertainty with respect to the water quality that would be seeping from the WRSF, Arcadis has assumed an additional 20 years of monitoring and treatment may be required for the WRSF only. There is insufficient information available to state for certain whether or not there will be an issue with seepage water quality entering the pit through the pit wall zones of high metal leaching potential and as such no security has been assisted for this potential outcome.

3.3.3 Engineering

The amount of engineering work required to implement the closure and reclamation plan as set out by Agnico is minimal given the amount of plant and infrastructure that will be on site during operations. For this reason, the use of 5% of direct costs is considered acceptable. This is also consistent with the approach taken by Agnico.

3.3.4 Project Management

Given the relatively minimal amount of work required to reclaim this site a project management percentage of 5% is reasonable. This level of effort was also used by Agnico.

3.3.5 Health and Safety Plans/Monitoring and QA/QC

The percentage used for this task is 1% and is consistent with the level used in industry and has also been used by Agnico in their estimate.

3.3.6 Bonding/Insurance

The percentage used for bonding and insurance is 1% and is consistent with the level used by Agnico.

3.3.7 Contingency

Given the level of mine development, a 20% contingency is appropriate. This is consistent with the approach used by Agnico.

3.3.8 Market Factor Adjustment

No market factor adjustment was used in the Arcadis estimate. This is consistent with the approach used by Agnico.

3.3.9 Summary of Indirect Cost Review

The net result of the Arcadis assessment was a total indirect cost of $15,047,388 as compared to a cost of $11,327,522 reported by Agnico. The $3,719,866 difference was largely due to the difference in costs associated with Post-Closure water monitoring and treatment and to a lesser extent the direct costs which increased the costs that were calculated on the basis of percentage of direct cost.

4 CONCLUSIONS AND RECOMMENDATIONS

On the basis of the review completed by Arcadis, the quantum of security has assessed to be $28,239,526. This estimate is approximately $8.24 M higher than the Agnico estimate and is based primarily on increased costs for the management of NPAG waste rock laydowns, management of petroleum hydrocarbons, increase in the size of the waste rock stockpile facility, post-closure monitoring and treatment, inclusion of the reclamation costs for the All-weather Road, and an incremental increase in contingency cost. A comparison of the two RECLAIM estimates is tabulated below.

Table 2: SUMMARY OF COSTS

Cost Items	Agnico RECLAIM	Arcadis RECLAIM
CAPITAL COSTS		
Open Pit	$4,050,038	$4,050,224
Rock Pile	$2,923,088	$4,065,088
Building and Equipment	$1,038,088	$2,391,931
Chemicals and Contaminated Soil Management	$178,853	$662,700
Surface and Groundwater Management	$482,595	$482,595
Interim Care and Maintenance	$0	$1,539,601
SUB-TOTAL	$8,672,662	$13,192,138
INDIRECT COSTS		
Mobilization/Demobilization	$5,420,771	$5,669,900
Post-Closure Monitoring and Maintenance	$3,131,499	$5,156,003
Engineering (5%)	$433,633	$659,607
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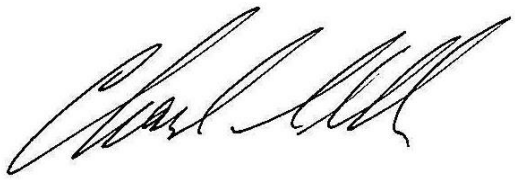
Bonding/Insurance (1%)	$86,727	$131,921
Contingency (20%)	$1,734,532	$2,638,428
Market Price Factor Adjustment	$0	$0
SUB-TOTAL	$11,327,522	$15,047,388
TOTAL COSTS	$20,000,185	$28,239,526

5 CLOSURE

We trust the information provided herein meets your current needs. Should you require any additional information please do not hesitate to contact us.



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Charles F. Gravelle, M.Sc.E., P.Eng.

Principal

6 REFERENCES

Addendum to Aginco Eagle Mines Whale Tail FEIS Appendix 6-H. Sensitivity Analysis on Water Quality Modelling in Support of Response to Technical Commitments 30, 36, 37 and 42 and intervenor Comments ECCC#15 and INAC TRC #3 and #5, on the Water Licence A Application to the Nunavut Water Board dated 10 July 2017 (Golder, 2017).

Agnico Eagle May 2016a. Volume 1 – Project Description Whale Tail Pit Project Meadowbank Division.

Agnico Eagle June 2016. Whale Tail Pit Interim Closure and Reclamation Plan.

Arcadis Canada Inc. September 2016. RECLAIM Estimate for Amaruq All-weather Road, Amaruq Mine and Exploration Camp.

Indian and Northern Affairs Canada (INAC), 2002. Mine Site Reclamation Policy for Nunavut. ISBN 0-662-32073-5. Copyright: Minister of Public Works and Government Services Canada.

Mackenzie Valley Land and Water Board, 2014. Guidelines for Closure and Reclamation Cost Estimates for Mines.

APPENDIX A

ARCADIS RECLAIM Worksheets

SUMMARY OF COSTS

CAPITAL COSTS	COMPONENT NAME	COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT		$4,050,224	$0	$4,050,224
UNDERGROUND MINE		$0	$0	$0
TAILINGS FACILITY		$0	$0	$0
ROCK PILE	Whale Tail WRSF	$4,065,088	$2,002,544	$2,062,544
BUILDINGS AND EQUIPMENT		$2,391,931	$545,766	$1,846,166
CHEMICALS AND CONTAMINATED SOIL MANAGEME		$662,700	$331,350	$331,350
SURFACE AND GROUNDWATER MANAGEMENT		$482,595	-	$482,595
INTERIM CARE AND MAINTENANCE		$1,539,601	-	$1,539,601
	SUBTOTAL: Capital Costs	**$13,192,138**	**$2,879,660**	**$10,312,479**
	PERCENT OF SUBTOTAL		**22%**	**78%**

INDIRECT COSTS		COST	LAND LIABILITY	WATER LIABILITY
MOBILIZATION/DEMOBILIZATION		$5,669,900	$1,237,660	$4,432,240
POST-CLOSURE MONITORING AND MAINTENANCE		$5,156,003	$1,125,484	$4,030,520
ENGINEERING	5%	$659,607	$143,983	$515,624
PROJECT MANAGEMENT	5%	$659,607	$143,983	$515,624
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	$131,921	$28,797	$103,125
BONDING/INSURANCE	1%	$131,921	$28,797	$103,125
CONTINGENCY	20%	$2,638,428	$575,932	$2,062,496
MARKET PRICE FACTOR ADJUSTMENT	0%	$0	$0	$0
	SUBTOTAL: Indirect Costs	**$15,047,388**	**$3,284,635**	**$11,762,753**
TOTAL COSTS		**$28,239,526**	**$6,164,294**	**$22,075,232**

1 **Open Pit Name:** **Pit # 1**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
CONTROL ACCESS									
Fence		m		#N/A	$0.00	$0		$0	$0
Signs	Assumed (increase by 5 for the large pit perimet	each	20	SH	$37.08	$742		$0	$742
Berm at crest		m3		#N/A	$0.00	$0		$0	$0
Block roads	per Golder Design	m3	270	RB1H	$17.05	$4,604		$0	$4,604
Other				#N/A	$0.00	$0		$0	$0
STABILITY STUDY									
Conduct stability and setback study		allow	1	EA	$20,000.00	$20,000		$0	$20,000
STABILIZE SLOPES									
Off-load crest, soil A		m3		#N/A	$0.00	$0		$0	$0
Off-load crest, soil B		m3		#N/A	$0.00	$0		$0	$0
Doze/trim overburden at crest		m3		#N/A	$0.00	$0		$0	$0
Drill & blast pit crest		m3		#N/A	$0.00	$0		$0	$0
Buttress slope		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
COVER/CONTOUR SLOPES									
Place fill, soil A		m3		#N/A	$0.00	$0		$0	$0
Place fill, soil B		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		#N/A	$0.00	$0		$0	$0
Vegetate slopes		ha		#N/A	$0.00	$0		$0	$0
Vegetate pit floor		ha		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
CONSTRUCT DIVERSION DITCHES									
Excavate ditches -soil	covered under Surface Water Mgmt	m3		#N/A	$0.00	$0		$0	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0		$0	$0
Rip rap in channel base		m3		#N/A	$0.00	$0		$0	$0
CONSTRUCT SPILLWAY									
Excavate channel		m3		#N/A	$0.00	$0		$0	$0
Concrete		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
RECLAIM QUARRIES									
Contour slopes	Assumed to be covered under road security	m3		#N/A	$0.00	$0		$0	$0
Place overburden		m3		#N/A	$0.00	$0		$0	$0
Vegetate		m3		#N/A	$0.00	$0		$0	$0
FLOOD PIT-Captital									
Remove stationary equipment (sump pumps)	from Meadowbank estimate	Allow	1	AE	$10,000.00	$10,000		$0	$10,000
Remove dewatering pipeline		m		#N/A	$0.00	$0		$0	$0
Remove power lines		each		#N/A	$0.00	$0		$0	$0
Construct diversion ditches		m3		#N/A	$0.00	$0		$0	$0
-Ditch, mat'l A		m3		#N/A	$0.00	$0		$0	$0
-Ditch, mat'l B		m3		#N/A	$0.00	$0		$0	$0
Construct embankment/dam		m3		#N/A	$0.00	$0		$0	$0
Supply/install pump station	from Meadowbank estimate	Allow	1	AE	$500,000.00	$500,000		$0	$500,000
Supply/install piping system		m		#N/A	$0.00	$0		$0	$0
Remove pump post-closure		each		#N/A	$0.00	$0		$0	$0
Remove pipeline post-closure		m		#N/A	$0.00	$0		$0	$0
FLOOD PIT-Annual Cost									
Operate pumps (power)	based on Meadowbank estimate	each	1	AE	$439,359.80	$439,360		$0	$439,360
Maintain pump/pipeline		allow		#N/A	$0.00	$0		$0	$0
Labour:fuel management, comissioning/decom		$/h		#N/A	$0.00	$0		$0	$0
Chemical addition, _____ kg/m3 of water		tonne		#N/A	$0.00	$0		$0	$0
Chemicals, purchase and shipping		tonne		#N/A	$0.00	$0		$0	$0
Passive/biological additives		$/ha		#N/A	$0.00	$0		$0	$0
Passive additives purchase and shipping		tonne		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
					Annual pumping costs	$439,360			
Number of years of pump flooding		years	8						
					Total pumping costs	$3,514,878		$0	$3,514,878
					Total	$4,050,224		$0	$4,050,224
					% of Total			0%	100%

1 **Tailings Impoundment Name:** **Pond # 1**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
CONTROL ACCESS									
Fence		m		#N/A	$0.00	$0		$0	$0
Signs		each		#N/A	$0.00	$0		$0	$0
Berm		m3		#N/A	$0.00	$0		$0	$0
Block roads		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
STABILIZE EMBANKMENT(S)									
Toe buttress, drainage layer		m3		#N/A	$0.00	$0		$0	$0
Toe buttress, bulk fill		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		RB2	$17.80	$0	50%	$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
Raise crest		m3		#N/A	$0.00	$0		$0	$0
Flatten slopes		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
COVER TAILINGS									
Grade/shape tailings surface		m3		#N/A	$0.00	$0		$0	$0
Liner bedding		m3		#N/A	$0.00	$0		$0	$0
Subgrade preparation - compact		m2		#N/A	$0.00	$0		$0	$0
Supply geotextile/geosynthetic		m2		#N/A	$0.00	$0		$0	$0
Install geotextile/geosynthetic		m2		#N/A	$0.00	$0		$0	$0
Soil cover		m3		SC4L	$9.30	$0	50%	$0	$0
Rock cover		m3		#N/A	$0.00	$0		$0	$0
Vegetate		ha		VHF	$4,000.00	$0	50%	$0	$0
Other		m3		SC4L	$9.30	$0	50%	$0	$0
BURY PAG ROCK									
Relocate PAG rock		m3		#N/A	$0.00	$0		$0	$0
Place cover over PAG rock		m3		#N/A	$0.00	$0		$0	$0
Raise crest of dam		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
STABILIZE DECANT SYSTEM									
Excavate and replace		m3		#N/A	$0.00	$0		$0	$0
Plug/backfill with concrete or clay		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
REMOVE TAILINGS DISCHARGE									
Cyclones		m3		#N/A	$0.00	$0		$0	$0
Pipe		m		ppls	$57.33	$0		$0	$0
Remove reclaim barge		allow		#N/A	$0.00	$0		$0	$0
CONSTRUCT DIVERSION DITCHES									
Excavate ditches -soil		m3		#N/A	$0.00	$0		$0	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0		$0	$0
Rip rap in channel base		m3		#N/A	$0.00	$0		$0	$0
FLOOD TAILINGS									
Doze tailings to final contour		m3		#N/A	$0.00	$0		$0	$0
Raise crest of dam		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
UPGRADE SPILLWAY									
Excavate channel, rock		m3		#N/A	$0.00	$0		$0	$0
Excavate channel, soil		m3		SC3H	$14.20	$0		$0	$0
Concrete		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		RB4H	$30.75	$0		$0	$0
Geotextile		m2		GSTL	$3.44	$0		$0	$0
CONSTRUCT SEEPAGE COLLECTION POND									
Excavate seepage collection pond		m3		#N/A	$0.00	$0		$0	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0		$0	$0
Vegetate spread material		ha		#N/A	$0.00	$0		$0	$0
Bedding layer		m3		#N/A	$0.00	$0		$0	$0
Supply geomembrane		m2		#N/A	$0.00	$0		$0	$0
Install geomembrane		m2		#N/A	$0.00	$0		$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0		$0	$0
INSTALL GROUNDWATER COLLECTION SYSTEM									
Excavate/install sumps		m3		#N/A	$0.00	$0		$0	$0
Install pumping wells		m3		#N/A	$0.00	$0		$0	$0
Install pumps/pipelines/power supply		LS		#N/A	$0.00	$0		$0	$0
SPECIALIZED ITEMS									
Install permanent instrumentation, supply & technican		each		#N/A	$30,000.00	$0		$0	$0
Install permanent instrumentation, drilling		each		#N/A	$30,000.00	$0			$0
TREAT SEEPAGE - see "Water Management" and "Water Treatment"									
TREAT SUPERNATANT									
Pump water (to pit, U/G)		m3		#N/A	$0.00	$0		$0	$0
Equipment maintenance and parts		allow		#N/A	$100,000.00	$0		$0	$0
Supply reagents		tonne		#N/A	$0.00	$0		$0	$0
					Annual treatment costs	$0			
Number of years of treatment		years							
					Total treatment costs	$0			$0
					Total	$0		$0	$0
					% of Total			0%	0%

* for construction of passive treatment system refer to "Water Management"

1 **Rock Pile Name:** **Whale Tail WRSF**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
STABILIZE SLOPES									
Flatten slopes with dozer		m3		#N/A	$0.00	$0		$0	$0
Flatten "bubble dump" areas		m3		#N/A	$0.00	$0		$0	$0
Divert runon, ditch mat'l A		m3		#N/A	$0.00	$0		$0	$0
Divert runon, ditch mat'l B		m3		#N/A	$0.00	$0		$0	$0
Toe buttress, drain mat'l		m3		#N/A	$0.00	$0		$0	$0
Toe buttress, fill mat'l A		m3		#N/A	$0.00	$0		$0	$0
Toe buttress, fill mat'l B		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
COVER ROCK PILE									
Subgrade preparation - doze surface		m3		#N/A	$0.00	$0		$0	$0
Soil cover - excavate,haul,spread&compact	per Golder design with 4 m cap of NPAG waste rock (Conservative Assumption)+ additional cap for 15m increase in WRSF height	m3	908160	SB1L	$4.30	$3,905,088	50%	$1,952,544	$1,952,544
Rock cover - excavate,haul & spread		m3		#N/A	$0.00	$0		$0	$0
Excavate downslope drainage channel & chute		m3		#N/A	$0.00	$0		$0	$0
Rip rap drainage channel and chute		m3		#N/A	$0.00	$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
VERY LOW PERMEABILITY COVER (in addition to above)									
Liner subgrade preparation - compact		m2		#N/A	$0.00	$0		$0	$0
Supply geomembrame		m2		#N/A	$0.00	$0		$0	$0
Install geomembrane		m2		#N/A	$0.00	$0		$0	$0
Protective cover - excavate,haul,spread&compact		m3		#N/A	$0.00	$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
Install infiltration/seepage instrumentation		allow		#N/A	$0.00	$0		$0	$0
CONSTRUCT DIVERSION DITCHES									
Excavate ditches -soil		m3		#N/A	$0.00	$0		$0	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0		$0	$0
Rip rap in channel base		m3		#N/A	$0.00	$0		$0	$0
CONSTRUCT SEEPAGE COLLECTION POND									
Excavate seepage collection pond		m3		#N/A	$0.00	$0		$0	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0		$0	$0
Vegetate spread material		ha		#N/A	$0.00	$0		$0	$0
Bedding layer		m3		#N/A	$0.00	$0		$0	$0
Supply geomembrane		m2		#N/A	$0.00	$0		$0	$0
Install geomembrane		m2		#N/A	$0.00	$0		$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0		$0	$0
INSTALL GROUNDWATER COLLECTION SYSTEM									
Excavate/install sumps		m3		#N/A	$0.00	$0		$0	$0
Install pumping wells		m3		#N/A	$0.00	$0		$0	$0
Install pumps/pipelines/power supply		allow		#N/A	$0.00	$0		$0	$0
RELOCATE DUMPS									
Load, haul, dump or doze		m3		SC3L	$8.90	$0		$0	$0
Add lime		tonne		#N/A	$0.00	$0		$0	$0
Contour reclaimed area		ha		#N/A	$0.00	$0		$0	$0
Other	Waste Rock Survey (500 samples)	allow	1	#N/A	$100,000.00	$100,000	50%	$50,000	$50,000
SPECIALIZED ITEMS									
Install permanent instrumentation	Thermistors to be installed assume 5 (factored by 1.2 to account for increased height 80 m to 95 m)	allow	1.2	Ea	$50,000.00	$60,000		$0	$60,000
Install permanent instrumentation, drilling		each		#N/A	$0.00	$0		$0	$0
TREAT ROCK PILE SEEPAGE - see "Water Management"									
HEAP LEACH SEEPAGE TREATMENT - Cyanide Detox									
Cyanide destruction water treatment pumping		m3		#N/A	$0.00	$0		$0	$0
Reagents		tonnes		#N/A	$0.00	$0		$0	$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	$0.00	$0		$0	$0
Equipment maintenance and parts		allow		#N/A	$0.00	$0		$0	$0
					Annual treatment costs	$0			
Number of years of treatment		years							
					Total treatment costs	$0			$0
HEAP LEACH SEEPAGE TREATMENT - ARD/ML**									
Upgrade/modify pumping system - report to WTP		allow		#N/A	$0.00	$0			$0
					Total	$4,065,088		$2,002,544	$2,062,544
					% of Total			49%	51%

* For construction of passive treatment system refer to "Water Management". ARD/ML seepage treatment becomes post-closure water treatment cost

**Heap leach ARD/ML seepage treatment becomes post-closure water treatment cost

1 **Chemicals/Soil Area Name:**

Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
HAZARDOUS MATERIALS AUDIT									
Hazardous materials audit	Not required	allow		#N/A	$25,000.00	$0	100%	$0	$0
BUILDING DECONTAMINATION & CONSOLIDATION OF HAZARDOUS MATERIALS									
Environmental technician/coordinator		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate: oil, fuel		manhours	20	AE	$1,000.00	$20,000	50%	$10,000	$10,000
Decontaminate maintenance shop		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate power plant		mandays	10	AE	$1,000.00	$10,000	50%	$5,000	$5,000
Decontaminate bulk fuel storage	No cost provided in Golder estimate to decontaminate the bulk fuel storage facility	mandays	5	AE	$1,000.00	$5,000	50%	$2,500	$2,500
Decontaminate ANFO plant	No cost provided in Golder estimate	mandays	1	AE	$1,000.00	$1,000	50%	$500	$500
Decontaminate offices/warehouse/accom		m2		BDAL	$25.60	$0		$0	$0
Removal of asbestos siding on buildings		m2		BDAL	$25.60	$0		$0	$0
Removal of friable asbestos on equipment		m2		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
HAZARDOUS MATERIALS REMOVAL									
Waste oils	Volume from Amarug RECLAIM Est.	litre	30000	orl	$0.43	$12,900	50%	$6,450	$6,450
Waste fuel	Volume from Amarug RECLAIM Est.	litre	160000	orl	$0.43	$68,800	50%	$34,400	$34,400
Waste batteries	includes fee and transportation	allow	1	AE	$3,000.00	$3,000	50%	$1,500	$1,500
Assay & environmental lab reagents		kg		#N/A	$25.00	$0		$0	$0
Machine shop paints, solvents etc	includes fee and transportation	litre	1	AE	$10,000.00	$10,000	50%	$5,000	$5,000
Glycol	includes fee and transportation	litre	1	AE	$20,000.00	$20,000	50%	$10,000	$10,000
Process reagents		kg		#N/A	$0.00	$0		$0	$0
Nuclear sources		allow		#N/A	$0.00	$0		$0	$0
Other hazardous materials	assumes no ANFO reamins on site includes fee and transportation	allow	1	AE	$20,000.00	$20,000	50%	$10,000	$10,000
HAZARDOUS MATERIALS									
Transportation to disposal facility	for waste fuel and oils	allow	1	ea	$10,000.00	$10,000	50%	$5,000	$5,000
Disposal fees	same cost as for Amaruq	allow	1	ea	$20,000.00	$20,000	50%	$10,000	$10,000
Other	Supervision of hazmat abatement	allow	1	ea	$40,000.00	$40,000	50%	$20,000	$20,000
CONTAMINATED SOILS									
Contam. soil investigation - Phase 1		each	1	CS1L	$7,500.00	$7,500	50%	$3,750	$3,750
Contam. soil investigation - Phase 2	More money required for INAC to complete an ESA program	allow	1	EA	$100,000.00	$100,000	50%	$50,000	$50,000
CONTAMINATED SOIL REMOVAL									
Excavate and transport to Meadowbank facility	Volume from Amarug RECLAIM Est.	m3	2000	sc4L	$9.30	$18,600	50%	$9,300	$9,300
Manage hydrocarbon remediation at Meadowbank facility	Volume from Amarug RECLAIM Est.	m3	2000	CSRL	$47.00	$94,000	50%	$47,000	$47,000
Reagents/stabilizing agent		m2		#N/A	$0.00	$0		$0	$0
Excavate and transport to offsite facility	Allowance for heavy oil impacts (10% of light fraction)	m3	200	est.	$1,000.00	$200,000	50%	$100,000	$100,000
Contour decontaminated area	Volume from Amarug RECLAIM Est.	m3	2000	dsl	$0.95	$1,900	50%	$950	$950
CONTAMINATED SOIL VERY LOW PERMEABILITY COVER									
Supply geomembrame, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Upper and lower bedding layers		m3		#N/A	$0.00	$0		$0	$0
Install geomembrane, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0		$0	$0
Vegetate		m2		#N/A	$0.00	$0		$0	$0
Install infiltration/seepage instrumentation		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
OTHER									
				#N/A	$0.00	$0		$0	$0
					Total	$662,700		$331,350	$331,350
					% of Total			50%	50%

1 **Building / Equip Name:** **Bldg / Equip #: 1**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
DISPOSE MOBILE EQUIPMENT									
Decontaminate and ship off-site		allow		#N/A	$0.00	$0		$0	$0
Decontaminate and dispose on-site	per ICRP	ınhours	300	mechl	$49.00	$14,700	50%	$7,350	$7,350
Other				#N/A	$0.00	$0		$0	$0
REMOVE BUILDINGS - see note below									
Accomodation Complex	per Golder	m2	4668	brs1l	$45.00	$210,060	50%	$105,030	$105,030
Process Facilities	Crusher Bldg	m2	700	brs1h	$65.00	$45,500	50%	$22,750	$22,750
Offices, Repair, Lab, Warehouse	per Golder	m2	1311.31	brs1l	$45.00	$59,009	50%	$29,504	$29,504
Storage Facilites	per Golder	m2	3699	brs1l	$45.00	$166,455	50%	$83,228	$83,228
Water and Wastewater Treatment Facilities	per Golder	m2	178.44	brs1l	$45.00	$8,030	50%	$4,015	$4,015
Power Plant	per Golder	m2	215.6	brs1h	$65.00	$14,014	50%	$7,007	$7,007
Communication Tower	per Golder	m2	100	brs1h	$65.00	$6,500	50%	$3,250	$3,250
U/G Heating Plant		m2		#N/A	$0.00	$0		$0	$0
Emulsion Plant		m2		#N/A	$0.00	$0		$0	$0
AN Storage Facility	two seacans	m2	50	brs1s	$128.00	$6,400	50%	$3,200	$3,200
Warehouse, Shops and Other	per Golder	m2	1222.1	brs1l	$45.00	$54,995	50%	$27,497	$27,497
Storage Facility at Laydown/Airstrip		m2		#N/A	$0.00	$0		$0	$0
Fuel tanks	On-Site bulk fuel tanks	m2	213.09	brs1h	$65.00	$13,851	50%	$6,925	$6,925
Fire Protection pumping station	per Golder	m	29.74	brs1h	$65.00	$1,933	50%	$967	$967
Freshwater intake	per Golder	m2	200	brs1l	$45.00	$9,000	50%	$4,500	$4,500
Reclaim pumps		m2		#N/A	$0.00	$0		$0	$0
Outfall & Diffuser		m2		#N/A	$0.00	$0		$0	$0
Airstrip lighting, navigation, electrician		mandays		#N/A	$0.00	$0		$0	$0
Airstrip lighting, navigation, mechanical		mandays		#N/A	$0.00	$0		$0	$0
Break foundation slabs	per Golder	m2	1222.1	brcs	$6.00	$7,333	50%	$3,666	$3,666
Consolidate & dump boneyard debris		allow		brs1l	$45.00	$0		$0	$0
Worker Dry	per Golder	m2	667.6	brs1l	$45.00	$30,042	50%	$15,021	$15,021
WTP & Fresh Water Pumping Station	per Golder	m2	832.09	brs1l	$45.00	$37,444	50%	$18,722	$18,722
WRSF Pond and Attenuation Pond Pumphouses	per Golder	m2	24.4	brs1l	$45.00	$1,098	50%	$549	$549
Water Intake		m2		brcs	$6.00	$0		$0	$0
Other		m2		bdcs	$12.63	$0		$0	$0
LANDFILL FOR DEMOLITION WASTE									
Place rock cover	in WRSF Cover Cost see Rock Pile	m3		#N/A	$0.00	$0		$0	$0
Place soil cover		allow		#N/A		$0		$0	$0
Vegetate		ha		#N/A	$0.00	$0		$0	$0
GRADE AND CONTOUR PADS									
Accomodation Complex	per Golder	m2	867.35	AE	$8.47	$7,346	50%	$3,673	$3,673
Process Facilities	per Golder	m2	700	AE	$8.47	$5,929	50%	$2,965	$2,965
Offices, Repair, Lab, Warehouse	per Golder	m2	1203.75	AE	$8.47	$10,196	50%	$5,098	$5,098
Storage Facilites	per Golder	m2	3699	AE	$8.47	$31,331	50%	$15,665	$15,665
Water and Wastewater Treatment Facilities	per Golder	m2	178.44	AE	$8.47	$1,511	50%	$756	$756
Power Plant	per Golder	m2	215.6	AE	$8.47	$1,826	50%	$913	$913
Communication Tower	per Golder	m2	100	AE	$8.47	$847	50%	$424	$424
U/G Heating Plant		m2		#N/A	$0.00	$0	50%	$0	$0
Emulsion Plant		m2		#N/A	$0.00	$0	50%	$0	$0
Warehouse, Shops and Other	per Golder	m2	1222.1	AE	$8.47	$10,351	50%	$5,176	$5,176
Fuel tanks on site for bulk fuel storage	Add 500 m2 for containment berm.	m2	713.09	AE	$8.47	$6,040	50%	$3,020	$3,020
Fire Protection pumping station	per Golder	m2	29.74	AE	$8.47	$252	50%	$126	$126
Worker Dry	per Golder	m2	667.6	AE	$8.47	$5,655	50%	$2,827	$2,827
WTP & Fresh Water Pumping Station	per Golder	m2	832.09	AE	$8.47	$7,048	50%	$3,524	$3,524
WRSF Pond and Attenuation Pond Pumphouses	per Golder	m2	24.4	AE	$8.47	$207	50%	$103	$103
Other	Camp pad not under building	m2	4668	AE	$8.47	$39,538	50%	$19,769	$19,769
PUNCTURE LINED SUMPS									
Puncture liner and place soil cover		m3		#N/A	$0.00	$0		$0	$0
RECLAIM ROADS									
Remove culverts	per ICRP (7) +AWR (153)	each	160	AEM	$4,000.00	$640,000		$0	$640,000
Remove bridges	AWR (11 bridges per AEM)	each	11	AEM	$50,000.00	$550,000		$0	$550,000
Scarify roads	Entire amount of AWR security + 8 km of local roads at 9.5 m total wdth includes side slopes	ha	48.84	scfyl	$4,300.00	$210,012	50%	$105,006	$105,006
Scarify airstriip	covered under Amaruq Exploration Mine security	ha		scfyh	$6,030.00	$0		$0	$0
Scarify ore piles laydown area	per ICRP	ha	15.6	scfyl	$4,300.00	$67,080	50%	$33,540	$33,540
Vegetate		allow		ea	$20,000.00	$0		$0	$0
Other	Close and Reclaim Borrow pits	ha	73.6	AEM	$1,500.00	$110,400		$0	$110,400
SPECIALIZED ITEMS									
Dispose of misc. debris and laydown area refuse				#N/A	$0.00	$0		$0	$0
					Total	$2,391,931		$545,766	$1,846,166
					% of Total			23%	77%

Note:

1 **Capital Expenditures and Short Term Water Treatment identified in 'Instructions' worksheet**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
BREACH DYKE EMBANKMENT						
Remove fill	per Golder	m3	20000	sc3l	$8.90	$178,000
Contour water intake area		m3		#N/A	$0.00	$0
STABILIZE SEDIMENT PONDS/WATER MANAGEMENT PONDS						
Place soil cover		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0
Vegetate spread material		ha		#N/A	$0.00	$0
Rip rap in channel base		each		#N/A	$0.00	$0
Remove sediment from WRSF Pond	Relocate to landfill	allow	1	AE	$10,000.00	$10,000
REDIRECT RUNOFF/CONSTRUCT DIVERSION DITCHES						
Excavate ditches -soil	assume 100 m per Golder	m3	720	sc3l	$8.90	$6,408
Excavate ditches -rock		m3		#N/A	$0.00	$0
Stabilize side slopes		m3		#N/A	$0.00	$0
Rip rap in channel base	assume 100 m per Golder	m3	220	rr2l	$14.20	$3,124
BREACH DITCHES						
Excavate breaches		m3		#N/A	$0.00	$0
Backfill/recontour	per Golder/SNC	m3	44130	SB3l	$5.10	$225,063
Install flow dissipation		m3		#N/A	$0.00	$0
Vegetate remainder of ditch		m2		#N/A	$0.00	$0
DECOMISSION FRESH WATER SUPPLY						
Breach embankment		m		#N/A	$0.00	$0
Remove pump	Nemo Lake and Whale Tail (south Basin)	LS	1	AE	$20,000.00	$20,000
Remove pipeline	per Golder	LS	1	AE	$40,000.00	$40,000
WATER CONTROL IN RECLAMATION QUARRY						
Install pumping system		LS		#N/A	$0.00	$0
Remove pumping system		LS		#N/A	$0.00	$0
REMOVE PIPELINES						
Remove pipes		m		#N/A	$0.00	$0
Concrete plug deep pipes		m3		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
GROUNDWATER COLLECTION SYSTEM						
Excavate/install sumps		m3		#N/A	$0.00	$0
Install pumping wells		m3		#N/A	$0.00	$0
Install pumps/pipelines/power supply		LS		#N/A	$0.00	$0
CONSTRUCT CONTAMINATED WATER STORAGE POND						
Excavate pond		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0
Vegetate spread material		ha		#N/A	$0.00	$0
Bedding layer		m3		#N/A	$0.00	$0
Supply geomembrane		m2		#N/A	$0.00	$0
Install geomembrane		m2		#N/A	$0.00	$0
Erosion protection layer		m3		#N/A	$0.00	$0
CONSTRUCT PASSIVE TREATMENT SYSTEM (e.g. Constructed Wetland)						
Construct access roads		km		#N/A	$0.00	$0
Install HDPE piping system from collection pond		m		#N/A	$0.00	$0
Inter-cell flow structures		allow		#N/A	$0.00	$0
Install liners		m2		#N/A	$0.00	$0
Install growth media		m3		#N/A	$0.00	$0
Wetland vegetation		ha		#N/A	$0.00	$0
CONSTRUCT WATER TREATMENT PLANT						
Build treatment plant		LS		#N/A	$0.00	$0
Build sludge containment facility		LS		#N/A	$0.00	$0
					Total	$482,595

For cost of long-term/post-closure water treatment see "WATER TREATMENT" Worksheet"

1 **Post Closure Water Treatment - Identified as long term/post-closure in 'Instructions' worksheet**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
ADDITION OF REAGENTS TO WTP						
H2O2		kg		#N/A	$0.00	$0
lime		kg		#N/A	$0.00	$0
ferric sulphate		kg		#N/A	$0.00	$0
ferrous sulphate		kg		#N/A	$0.00	$0
flocculents		kg		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
LABOUR AND SUPPLIES						
Annual fuel		litres		#N/A	$0.00	$0
Annual power		kW-h		#N/A	$0.00	$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	$0.00	$0
Equipment maintenance and parts		allow		#N/A	$0.00	$0
Misc. supplies, hoses, tools		allow		#N/A	$0.00	$0
Communications		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
WATER MANAGEMENT						
Water Treatment (reagents, equip Op. labour)		m3	154740	AE	$0.62	$95,939
Water pumping from sumps and ponds to treatment plant		allow	1	AE	$29,367.83	$29,368
Annual Treatment Plant Servicing		manho	169	lab-ss	$120.00	$20,280
Treatment Plant Servicing Travel Allowance		visit	2	AE	$4,000.00	$8,000
Other				#N/A	$0.00	$0
WTP WATER SAMPLING AND ANALYSES						
Sampling equipment		allow		#N/A	$0.00	$0
Analyses		allow		#N/A	$0.00	$0
Shipping to laboratory		allow		#N/A	$0.00	$0
Reporting		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
SITE ACCESS						
Road maintenance (incl. snow removal)		allow	1	AE	$50,000.00	$50,000
Winter road tariff		allow		#N/A	$0.00	$0
Truck rental		allow		#N/A	$0.00	$0
Air support		allow		#N/A	$0.00	$0
					Annual water treatment costs	$203,587
Number of years of water treatment		years	20			
					Total	$4,071,733

1 **Interim Care and Maintenance**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
INTERIM CARE & MAINTENANCE						
on-site caretaker	supervisor	manmonths	2	superh	91.84	$184
extra personnel	one skilled labourer	manmonths	2	lab-sl	41	$82
-electrician	assumes water treatment still required	manmonths	1	elech	95	$95
-mechanic	assumes water treatment still required	manmonths	1	mechh	72.85	$73
annual fuel		litre	10000	fcdh	1.39	$13,900
misc. supplies		allow	180	accmh	175	$31,500
pick-up truck		each		#N/A	0	$0
small dozer		allow		#N/A	0	$0
small excavator		allow		#N/A	0	$0
snow machine		allow		#N/A	0	$0
communications		allow	1	#N/A	5000	$5,000
SNP/AEMP water sampling & reporting	Site ($25K) and AWR ($2.5K) Reporting	each	1	#N/A	27500	$27,500
geotechnical assessment	Site ($25K) and AWR ($1K) Reporting	each	1	#N/A	26000	$26,000
interim water treatment				#N/A		$203,587
other		each		#N/A	0	$0
			Annual	Interim C&M Cost		$307,920
Number of years of ICM		years	5		**Total**	$1,539,601

1 Post-Closure Monitoring & Maintenance:

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MONITORING & INSPECTIONS						
Annual geotechnical inspection		each	1	VIH	$7,977.79	$7,978
Surface water sampling		each	1	wsh	$10,000.00	$10,000
Groundwater sampling		each	1	wsh	$10,000.00	$10,000
Receiving.downstream water sampling		each	1	wsh	$10,000.00	$10,000
Monitoring program	Site ($100K) + AWR ($25K prorated to $5K)	each	1	AE	$105,000.00	$105,000
Survey inspection		each		#N/A	$0.00	$0
Regulatory costs*		each		#N/A	$15,500.00	$0
Site water monitoring (AEMP and SNP)		each		#N/A	$25,000.00	$0
- Active closure and flooding		each		#N/A	$0.00	$0
- Post pit flooding		each		#N/A	$0.00	$0
Air Quality Monitoring Program (AQMP)		each		#N/A	$0.00	$0
Wildlife Effects Monitoring Program (WEMP)		each		#N/A	$0.00	$0
Vegetation Monitoring		each		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
COVER MAINTENANCE						
Repair erosion - infill gullies		allow		#N/A	$0.00	$0
Repair erosion - upgrade diversion ditches		allow		#N/A	$0.00	$0
Remove problem vegetation		allow		#N/A	$0.00	$0
Repair animal damage		allow		#N/A	$0.00	$0
Repair/upgrade access controls		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
SPILLWAY MAINTENANCE						
Repair erosion		m3		#N/A	$0.00	$0
Clear spillway		each		#N/A	$0.00	$0
CWTS MAINTENANCE						
Maintain flow, restore vegetation		allow		#N/A	$0.00	$0
POST-CLOSURE WATER TREATMENT						
water treatment - refer to water treatment tab			1	wt tab	$203,586.63	$203,587
Subtotal, Annual post-closure costs						$346,564
Discount rate for calculation of net present value of post-closure cost, %				3.00%		
Number of years of post-closure activity				20 years		
Present Value of payment stream						$5,156,003

*Regulatory costs - annual reporting, management plans, progress reports etc.

1 **Mobilization/Demobilization:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MOBILIZE HEAVY EQUIPMENT						
Excavators	assume two excavators	km	300	mherh	10.25	$3,075
Dump trucks	assume four dump trucks	km	600	mherl	3.4	$2,040
Dozers	assume two dozers	km	300	mherh	10.25	$3,075
Demolition shears	assume one set of shears	km	150	mherh	10.25	$1,538
Crane	assume one crane	km	150	mherh	10.25	$1,538
Loader	assume one loader	km	300	mherh	10.25	$3,075
Compactor		km		#N/A	0	$0
Light duty vehicles	assume three trucks	km	450	mherl	3.4	$1,530
MOBILIZE MISC. EQUIPMENT						
Pump shipping		each		#N/A	0	$0
Pipe shipping		m		#N/A	0	$0
Minor tools and equipment	An allowance to cover the cost of purchase of small tools, equipment and the like as may be required to complete the decommissioning works.	allow	1	#N/A	50000	$50,000
Truck tires		allow		#N/A	0	$0
Other				#N/A	0	$0
MOBILIZE CAMP						
Maintain Camp Accomodations	Site (13786) + AWR (56)	andays	13842	accml	100	$1,384,200
Reclamation activities		allow		#N/A	0	$0
Long term reclamation activities (eg pump flooding)		allow		#N/A	0	$0
MOBILIZE WORKERS						
Reclamation activities - transport		manhours	606	AE	3300	$1,999,800
Reclamation activities - travel time	ten workers two hours two trips + AWR time (168+6)	ınhours	21990	AE	80	$1,759,200
Long term reclamation activities (eg pump flooding) - transport		each	72	AE	3300	$237,600
Long term reclamation activities (eg pump flooding) - travel time		manhours	2592	AE	80	$207,360
Monitoring Airfare		each		mwl	4500	$0
WORKER ACCOMODATIONS						
Reclamation activities		manmonths		#N/A	2225	$0
Long term reclamation activities (eg pump flooding)		manmonths		#N/A	0	$0
MOBILIZE FUEL						
Fuel freight - reclamation activities	assumes sufficient fuel is on site to complete the work	litre		fcdh	1.39	$0
Fuel freight - long term reclamation activities	assumes sufficient fuel is on site to complete the work	litre		#N/A	0	$0
Fuel freight accomodations		litre		#N/A	0	$0
WINTER ROAD						
Construction and operation		km		#N/A	0	$0
Limited winter use		km		#N/A	0	$0
Winter road tarriff		km		#N/A	0	$0
DEMOBILIZE HEAVY EQUIPMENT						
Excavators	assume two excavators	km	300	mherh	10.25	$3,075
Dump trucks	assume four dump trucks	km	600	mherl	3.4	$2,040
Dozers	assume two dozers	km	300	mherh	10.25	$3,075
Demolition shears	assume one set of shears	km	150	mherh	10.25	$1,538
Crane	assume one crane	km	150	mherh	10.25	$1,538
Loader	assume one loader	km	300	mherh	10.25	$3,075
Compactor		each		#N/A	0	$0
Light duty vehicles	assume three trucks	km	450	mherl	3.4	$1,530
Other		km		#N/A	0	$0
DEMOBILIZE CAMP						
		allow		#N/A	0	$0
DEMOBILIZE WORKERS						
crew travel time	cost in mobilization of workers.	andays		#N/A	0	$0
crew transportation		each		#N/A	0	$0
WINTER ROAD						
Construction and operation		km		wrcl	2000	$0
Limited winter use		km		#N/A	0	$0
Winter road tarriff		tonnekm		wrul	0.29	$0
					Total	**$5,669,900**

APPENDIX B

Agnico RECLAIM Worksheets

SUMMARY OF COSTS

CAPITAL COSTS	COMPONENT NAME	COST	LAND LIABILITY	WATER LIABILITY
OPEN PIT	Whale Tail Pit	$4,050,038	$0	$4,050,038
UNDERGROUND MINE		$0	$0	$0
TAILINGS FACILITY		$0	$0	$0
ROCK PILE		$2,923,088	$0	$2,923,088
BUILDINGS AND EQUIPMENT		$1,038,088	$0	$1,038,088
CHEMICALS AND CONTAMINATED SOIL MANAGEME		$178,853	$0	$178,853
SURFACE AND GROUNDWATER MANAGEMENT		$482,595	-	$482,595
INTERIM CARE AND MAINTENANCE		$0	-	$0
SUBTOTAL: Capital Costs		**$8,672,662**	**$0**	**$8,672,662**
PERCENT OF SUBTOTAL			**0%**	**100%**

INDIRECT COSTS		COST	LAND LIABILITY	WATER LIABILITY
MOBILIZATION/DEMOBILIZATION		$5,420,771	$0	$5,420,771
POST-CLOSURE MONITORING AND MAINTENANCE		$3,131,499	$0	$3,131,499
ENGINEERING	5%	$433,633	$0	$433,633
PROJECT MANAGEMENT	5%	$433,633	$0	$433,633
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	$86,727	$0	$86,727
BONDING/INSURANCE	1%	$86,727	$0	$86,727
CONTINGENCY	20%	$1,734,532	$0	$1,734,532
MARKET PRICE FACTOR ADJUSTMENT	0%	$0	$0	$0
SUBTOTAL: Indirect Costs		**$11,327,522**	**$0**	**$11,327,522**

TOTAL COSTS	**$20,000,185**	**$0**	**$20,000,185**

Note: Existing underground workings from explorations are covered under Type B land and water permits

1 **Open Pit Name:** **Whale Tail Pit** **Pit # 1**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
CONTROL ACCESS									
Fence,		m		#N/A	$0.00	$0		$0	$0
Signs	Assumed	each	15	SH	$37.08	$556		$0	$556
Berm at crest	In place from perimeter road	m3		#N/A	$0.00	$0		$0	$0
Block roads	Assumed: 3 entrances, each block 5m base, 1 m crest width, 1 m high, 2H:1V slopes and 30m long	m3	270	RB1H	$17.05	$4,604		$0	$4,604
Other				#N/A	$0.00	$0		$0	$0
STABILITY STUDY									
Conduct stability and setback study		allow	1	EA	$20,000.00	$20,000		$0	$20,000
STABILIZE SLOPES									
Off-load crest, soil A		m3		#N/A	$0.00	$0		$0	$0
Off-load crest, soil B		m3		#N/A	$0.00	$0		$0	$0
Doze/trim overburden at crest		m3		#N/A	$0.00	$0		$0	$0
Drill & blast pit crest		m3		#N/A	$0.00	$0		$0	$0
Buttress slope		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
COVER/CONTOUR SLOPES									
Place fill, soil A		m3		#N/A	$0.00	$0		$0	$0
Place fill, soil B		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		#N/A	$0.00	$0		$0	$0
Vegetate slopes		ha		#N/A	$0.00	$0		$0	$0
Vegetate pit floor		ha		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
CONSTRUCT DIVERSION DITCHES									
Excavate ditches -soil		m3		#N/A	$0.00	$0		$0	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0		$0	$0
Rip rap in channel base		m3		#N/A	$0.00	$0		$0	$0
CONSTRUCT SPILLWAY									
Excavate channel	Mammoth channel culvert in operations Breach Mammoth Dike in Surface Water Management cost	m3		#N/A	$0.00	$0		$0	$0
Concrete		m3		#N/A	$0.00	$0		$0	$0
Rip rap		m3		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
RECLAIM QUARRIES									
Contour slopes		m3		#N/A	$0.00	$0		$0	$0
Place overburden		m3		#N/A	$0.00	$0		$0	$0
Vegetate		m3		#N/A	$0.00	$0		$0	$0
FLOOD PIT-Captital									
Remove stationary equipment (sump pumps) and dewatering pipeline		Allow	1	AE	$10,000.00	$10,000		$0	$10,000
Remove dewatering pipeline		m		#N/A	$0.00	$0		$0	$0
Remove power lines		each		#N/A	$0.00	$0		$0	$0
Construct diversion ditches		m3		#N/A	$0.00	$0		$0	$0
-Ditch, mat'l A		m3		#N/A	$0.00	$0		$0	$0
-Ditch, mat'l B		m3		#N/A	$0.00	$0		$0	$0
Construct embankment/dam		m3		#N/A	$0.00	$0		$0	$0
Supply/install pump station and piping system (including pumps		Allow	1	AE	$500,000.00	$500,000		$0	$500,000
Supply/install piping system		m		#N/A	$0.00	$0		$0	$0
Remove pump post-closure		each		#N/A	$0.00	$0		$0	$0
Remove pipeline post-closure		m		#N/A	$0.00	$0		$0	$0
FLOOD PIT-Annual Cost									
Operate pumps to flood pit		each	1	AE	$439,359.8	$439,360		$0	$439,360
Maintain pump/pipeline		allow		#N/A	$0.00	$0		$0	$0
Labour:fuel management, comissioning/decom		$/h		#N/A	$0.00	$0		$0	$0
Chemical addition, _____ kg/m3 of water		tonne		#N/A	$0.00	$0		$0	$0
Chemicals, purchase and shipping		tonne		#N/A	$0.00	$0		$0	$0
Passive/biological additives		$/ha		#N/A	$0.00	$0		$0	$0
Passive additives purchase and shipping		tonne		#N/A	$0.00	$0		$0	$0
Other- Pump operation cost		m3		#N/A	$0.00	$0		$0	$0
					Annual pumping costs	$439,360			
Number of years of pump flooding		years	8						
					Total pumping costs	$3,514,878		$0	$3,514,878
					Total	$4,050,038		$0	$4,050,038
					% of Total			0%	100%

Note: No water purchase is needed for back-flooding

1 **Rock Pile Name:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost
STABILIZE SLOPES								
Flatten slopes with dozer		m3		#N/A	$0.00	$0	$0	$0
Flatten "bubble dump" areas		m3		#N/A	$0.00	$0	$0	$0
Divert runon, ditch mat'l A		m3		#N/A	$0.00	$0	$0	$0
Divert runon, ditch mat'l B		m3		#N/A	$0.00	$0	$0	$0
Toe buttress, drain mat'l		m3		#N/A	$0.00	$0	$0	$0
Toe buttress, fill mat'l A		m3		#N/A	$0.00	$0	$0	$0
Toe buttress, fill mat'l B		m3		#N/A	$0.00	$0	$0	$0
COVER ROCK PILE								
Subgrade preparation - doze surface		m3		#N/A	$0.00	$0	$0	$0
Soil cover - excavate,haul,spread&compact		m3		#N/A	$0.00	$0	$0	$0
non-PAG waste rock cover (4 m thick)	Cover will be 2 to 4 m thick - 4 m was used . Assumes that 80% will be placed during operations and therefore assumed as capital cost as the non-PAG will be placed with the PAG in the facility	m3	668160	SB1L	$4.30	$2,873,088	$0	$2,873,088
Excavate downslope drainage channel & chute		m3		#N/A	$0.00	$0	$0	$0
Rip rap drainage channel and chute		m3		#N/A	$0.00	$0	$0	$0
Vegetate		ha		#N/A	$0.00	$0	$0	$0
Other				#N/A	$0.00	$0	$0	$0
VERY LOW PERMEABILITY COVER (in addition to above)								
Liner subgrade preparation - compact		m2		#N/A	$0.00	$0	$0	$0
Supply geomembrame		m2		#N/A	$0.00	$0	$0	$0
Install geomembrane		m2		#N/A	$0.00	$0	$0	$0
Protective cover - excavate,haul,spread&compact		m3		#N/A	$0.00	$0	$0	$0
Vegetate		ha		#N/A	$0.00	$0	$0	$0
Install infiltration/seepage instrumentation		allow		#N/A	$0.00	$0	$0	$0
CONSTRUCT DIVERSION DITCHES								
Excavate ditches -soil		m3		#N/A	$0.00	$0	$0	$0
Excavate ditches -rock		m3		#N/A	$0.00	$0	$0	$0
Rip rap in channel base		m3		#N/A	$0.00	$0	$0	$0
CONSTRUCT SEEPAGE COLLECTION POND								
Excavate seepage collection pond		m3		#N/A	$0.00	$0	$0	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0	$0	$0
Vegetate spread material		ha		#N/A	$0.00	$0	$0	$0
Bedding layer		m3		#N/A	$0.00	$0	$0	$0
Supply geomembrane		m2		#N/A	$0.00	$0	$0	$0
Install geomembrane		m2		#N/A	$0.00	$0	$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0	$0	$0
INSTALL GROUNDWATER COLLECTION SYSTEM								
Excavate/install sumps		m3		#N/A	$0.00	$0	$0	$0
Install pumping wells		m3		#N/A	$0.00	$0	$0	$0
Install pumps/pipelines/power supply		allow		#N/A	$0.00	$0	$0	$0
RELOCATE DUMPS								
Load, haul, dump or doze		m3		#N/A	$0.00	$0	$0	$0
Add lime		tonne		#N/A	$0.00	$0	$0	$0
Contour reclaimed area		ha		#N/A	$0.00	$0	$0	$0
Other				#N/A	$0.00	$0	$0	$0
SPECIALIZED ITEMS								
Install permanent instrumentation	thermistors	Allow	1	EA	$50,000.00	$50,000	$0	$50,000
Install permanent instrumentation, drilling		each		#N/A	$0.00	$0	$0	$0
TREAT ROCK PILE SEEPAGE - "It is included on Water Treatment Sheet"								
HEAP LEACH SEEPAGE TREATMENT - Cyanide Detox								
Cyanide destruction water treatment pumping		m3		#N/A	$0.00	$0	$0	$0
Reagents		tonnes		#N/A	$0.00	$0	$0	$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	$0.00	$0	$0	$0
Equipment maintenance and parts		allow		#N/A	$0.00	$0	$0	$0
					Annual treatment costs	$0		
Number of years of treatment		years						
					Total treatment costs	$0		$0
HEAP LEACH SEEPAGE TREATMENT - ARD/ML**								
Upgrade/modify pumping system - report to WTP		allow		#N/A	$0.00	$0		$0
					Total	$2,923,088	$0	$2,923,088
					% of Total		0%	100%

* For construction of passive treatment system refer to "Water Management". ARD/ML seepage treatment becomes post-closure water treatment cost

**Heap leach ARD/ML seepage treatment becomes post-closure water treatment cost

1 **Building / Equip Name:** **Bldg / Equip #:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost
DISPOSE MOBILE EQUIPMENT								
Decontaminate and ship off-site		allow		#N/A	$0.00	$0	$0	$0
Decontaminate and dispose on-site		manhours	300	MECHL	$49.00	$14,700	$0	$14,700
Other				#N/A	$0.00	$0	$0	$0
REMOVE BUILDINGS - see note below								
Accomodation Complex - Main Camp		m2	4668.0	BRS1L	$45.00	$210,060	$0	$210,060
Process Facilities - Crushers		m2	700	BRS1H	$65.00	$45,500	$0	$45,500
Offices, kitchen, ERT		m2	1311.31	BRS1L	$45.00	$59,009	$0	$59,009
Storage Facilites (Main Warehouse)		m2	3699	BRS1L	$45.00	$166,455	$0	$166,455
Water and Wastewater Treatment Facilities		m2	178.44	BRS1L	$45.00	$8,030	$0	$8,030
Power Plant		m2	215.6	BRS1H	$65.00	$14,014	$0	$14,014
Communication Tower		m2	100	BRS1H	$65.00	$6,500	$0	$6,500
U/G Heating Plant		m2		#N/A	$0.00	$0	$0	$0
Emulsion Plant		m2		#N/A	$0.00	$0	$0	$0
AN Storage Facility		m2		#N/A	$0.00	$0	$0	$0
Shops and Other		m2	1222.1	BRS1L	$45.00	$54,996	$0	$54,996
Storage Facility at Laydown/Airstrip		m2		#N/A	$0.00	$0	$0	$0
Fuel tanks on site / Bulk fuel tank		m2	213.09	BRS1H	$65.00	$13,851	$0	$13,851
Fuel Tanks		m2		#N/A	$0.00	$0	$0	$0
Fire protection- Pumping station		m2	29.74	BRS1H	$65.00	$1,933	$0	$1,933
Freshwater intake		m2	200	BRS1L	$45.00	$9,000	$0	$9,000
Reclaim pumps		m2		#N/A	$0.00	$0	$0	$0
Outfall & Diffuser		allow	1	EA	$20,000.00	$20,000	$0	$20,000
Airstrip lighting, navigation, electrician		mandays		#N/A	$0.00	$0	$0	$0
Airstrip lighting, navigation, mechanical		mandays		#N/A	$0.00	$0	$0	$0
Break foundation slabs	total of all buildings	m2	1222.1	BRCS	$6.00	$7,333	$0	$7,333
Consolidate & dump boneyard debris		m3		#N/A	$0.00	$0	$0	$0
Ramp portal		m2		#N/A	$0.00	$0	$0	$0
Workers Dry		m2	667.6	BRS1L	$45.00	$30,042	$0	$30,042
WTP & Fresh water pumping station		m2	832.09	BRS1L	$45.00	$37,444	$0	$37,444
WRSF Pond, Attenuation Pond pumphouses		m2	24.4	BRS1L	$45.00	$1,098	$0	$1,098
Water Intake		m2		#N/A	$0.00	$0	$0	$0
LANDFILL FOR DEMOLITION WASTE								
Place rock cover	in WRSF cover cost	m3		#N/A	$0.00	$0	$0	$0
Place soil cover		m3		#N/A	$0.00	$0	$0	$0
Vegetate		ha		#N/A	$0.00	$0	$0	$0
GRADE AND CONTOUR PADS								
Accomodation Complex - Main Camp	Updated	m3	4668	AE	$8.47	$39,538	$0	$39,538
Process Facilities - Crushers		m3	700	AE	$8.47	$5,929	$0	$5,929
Offices, kitchen, ERT		m3	1203.75	AE	$8.47	$10,196	$0	$10,196
Storage Facilites (Main Warehouse)		m3	3699	AE	$8.47	$31,331	$0	$31,331
Water and Wastewater Treatment Facilities		m3	178.44	AE	$8.47	$1,511	$0	$1,511
Power Plant		m3	215.6	AE	$8.47	$1,826	$0	$1,826
Communication Tower		m2	100	AE	$8.47	$847	$0	$847
U/G Heating Plant		m3		#N/A	$0.00	$0	$0	$0
Emulsion Plant		m3		#N/A	$0.00	$0	$0	$0
Shops and Other		m3	1222.1	AE	$8.47	$10,352	$0	$10,352
Fuel tanks on site / Bulk fuel tank		m3	213.09	AE	$8.47	$1,805	$0	$1,805
Fire protection- Pumping station		m3	29.74	AE	$8.47	$252	$0	$252
Ramp portal	in Type B permit	m3		#N/A	$0.00	$0	$0	$0
Workers Dry		m3	667.6	AE	$8.47	$5,655	$0	$5,655
Place rock cover		m3		#N/A	$0.00	$0	$0	$0
Vegetate		ha		#N/A	$0.00	$0	$0	$0
WTP & Fresh water pumping station		m3	832.09	AE	$8.47	$7,048	$0	$7,048
WRSF Pond, Attenuation Pond pumphouses		m3	24.4	AE	$8.47	$207	$0	$207
PUNCTURE LINED SUMPS								
Puncture liner and place soil cover		m3		#N/A	$0.00	$0	$0	$0
RECLAIM ROADS								
Remove culverts		each		#N/A	$0.00	$0	$0	$0
Remove bridges		each		#N/A	$0.00	$0	$0	$0
Scarify and install water breaks	Account only remain width from exploration road (9.5-6.5)	ha	19.23	SCFYH	$6,030.00	$115,957	$0	$115,957
Scarify roads	On site access roads - 8 km based on Figure 1.1-1 of ICRP, assu	ha	6.4	SCFYH	$6,030.00	$38,592	$0	$38,592
Scarify airstriip		ha		#N/A	$0.00	$0	$0	$0
Scarify laydown and ore stockpile areas	Updated	ha	15.6	SCFYL	$4,300.00	$67,080	$0	$67,080
Vegetate		ha		#N/A	$0.00	$0	$0	$0
Other				#N/A	$0.00	$0	$0	$0
SPECIALIZED ITEMS								
Dispose of misc. debris and laydown area refuse				#N/A	$0.00	$0	$0	$0
					Total	$1,038,088	$0	$1,038,088
					% of Total		0%	100%

Note
Costs are based on file "6108 Building Listing_RA.xlsx" dated 3/14/2016, total area used for remove buildings section, and ground area for grade and contour pads

1 **Chemicals/Soil Area Name:**

Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
HAZARDOUS MATERIALS AUDIT									
Hazardous materials audit		mandays		#N/A	$0.00	$0		$0	$0
Phase 1 audit		each	1	CS1L	$7,500.00	$7,500		$0	$7,500
Phase 2 audit		each	1	CS2L	$50,000.00	$50,000		$0	$50,000
BUILDING DECONTAMINATION & CONSOLIDATION OF HAZARDOUS MATERIALS									
Environmental technician/coordinator		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate: oil, fuel		mandays	20	AE	$1,000.00	$20,000		$0	$20,000
Decontaminate maintenance shop		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate power plant		mandays	10	AE	$1,000.00	$10,000		$0	$10,000
Decontaminate bulk fuel storage		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate ANFO plant		mandays		#N/A	$0.00	$0		$0	$0
Decontaminate offices/warehouse/accom		mandays		#N/A	$0.00	$0		$0	$0
Removal of asbestos siding on buildings		m2		#N/A	$0.00	$0		$0	$0
Removal of friable asbestos on equipment		m2		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
HAZARDOUS MATERIALS REMOVAL									
Waste oils	Burn on site	litre		#N/A	$0.00	$0		$0	$0
Waste fuel	Burn on site	litre		#N/A	$0.00	$0		$0	$0
Waste batteries	includes fee and transportation	allow	1	AE	$3,000.00	$3,000		$0	$3,000
Assay & environmental lab reagents		kg		#N/A	$0.00	$0		$0	$0
Machine shop paints, solvents etc	includes fee and transportation	allow	1	AE	$10,000.00	$10,000		$0	$10,000
Glycol	includes fee and transportation	allow	1	AE	$20,000.00	$20,000		$0	$20,000
Process reagents		kg		#N/A	$0.00	$0		$0	$0
Nuclear sources		allow		#N/A	$0.00	$0		$0	$0
Other hazardous materials	includes fee and transportation	allow	1	AE	$20,000.00	$20,000		$0	$20,000
HAZARDOUS MATERIALS									
Transportation to disposal facility	WT to Meadowbank - it only considers hazmat to be produced at Whale Tail	allow	1	AE	$10,000.00	$10,000		$0	$10,000
Disposal fees		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
CONTAMINATED SOILS									
Contam. soil investigation - Phase 1		each		#N/A	$0.00	$0		$0	$0
Contam. soil investigation - Phase 2	in Audit above	each		#N/A	$0.00	$0		$0	$0
CONTAMINATED SOIL REMOVAL									
Excavate and transport to Meadowbank landfarm (Site fuel, power plant,Mine maitenance shop)		m3	495	SC4L	$9.30	$4,606		$0	$4,606
Manage hydrocarbon remediation at Meadowbank landfarm		m3	495	CSRL	$47.00	$23,277		$0	$23,277
Reagents/stabilizing agent		m2		#N/A	$0.00	$0		$0	$0
Excavate and transport to offsite facility		m3		#N/A	$0.00	$0		$0	$0
Contour decontaminated area		m3	495	DSL	$0.95	$470		$0	$470
CONTAMINATED SOIL VERY LOW PERMEABILITY COVER									
Supply geomembrame, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Upper and lower bedding layers		m3		#N/A	$0.00	$0		$0	$0
Install geomembrane, HDPE, ES3, GCL		m2		#N/A	$0.00	$0		$0	$0
Erosion protection layer		m3		#N/A	$0.00	$0		$0	$0
Vegetate		m2		#N/A	$0.00	$0		$0	$0
Install infiltration/seepage instrumentation		allow		#N/A	$0.00	$0		$0	$0
Other				#N/A	$0.00	$0		$0	$0
OTHER									
				#N/A	$0.00	$0		$0	$0
					Total	$178,853		$0	$178,853
					% of Total			0%	100%

1 **Capital Expenditures and Short Term Water Treatment identified in 'Instructions' worksheet**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
BREACH DYKE EMBANKMENT						
Remove (excavate) fill	Assumed a total of 8 breaches: 3 on Whale Tail Dyke, 2 on Northeast Dyke,1 on Mammoth Dyke, 1 on WRSF Dyke and 1 on Saddle Dam. Total dyke material will be removed and places on the WRSF	m3	20000	SC3L	$8.90	$178,000
Contour water intake area		m3		#N/A	$0.00	$0
STABILIZE SEDIMENT PONDS/WATER MANAGEMENT PONDS						
Place soil cover		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0
Vegetate spread material		ha		#N/A	$0.00	$0
Rip rap in channel base		each		#N/A	$0.00	$0
Remove sediments from WRSF pond and place them in the landfill	assumed	allow	1	AE	$10,000.00	$10,000
REDIRECT RUNOFF/CONSTRUCT DIVERSION DITCHES						
Excavate ditches -soil	assumed 100 m	m3	720	SC3L	$8.90	$6,408
Excavate ditches -rock		m3		#N/A	$0.00	$0
Stabilize side slopes		m3		#N/A	$0.00	$0
Rip rap in channel base	assumed 100 m	m3	220	RR2L	$14.20	$3,124
BREACH DITCHES						
Excavate breaches		m3		#N/A	$0.00	$0
Backfill/recontour	Assumed - total excavacation volume for channels construction = 147,100 m3 from SNC Lavalin report. 30% of this volume was asssumed for recontour of channels to restore drainage path (remaining assumed that will be filled with sediments with time)	m3	44130	SB3L	$5.10	$225,063
Install flow dissipation		m3		#N/A	$0.00	$0
Vegetate remainder of ditch		m2		#N/A	$0.00	$0
DECOMMISSION FRESH WATER SUPPLY						
Breach embankment		m		#N/A	$0.00	$0
Remove pump	Nemo Lake and Whale Tail (South Basin)	LS	1	EA	$20,000.00	$20,000
Remove pipeline	to Nemo Lake and Whale Tail (South Basin)	LS	1	EA	$40,000.00	$40,000
WATER CONTROL IN RECLAMATION QUARRY						
Install pumping system		LS		#N/A	$0.00	$0
Remove pumping system		LS		#N/A	$0.00	$0
REMOVE PIPELINES						
Remove pipes		m		#N/A	$0.00	$0
Concrete plug deep pipes		m3		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
GROUNDWATER COLLECTION SYSTEM						
Excavate/install sumps		m3		#N/A	$0.00	$0
Install pumping wells		m3		#N/A	$0.00	$0
Install pumps/pipelines/power supply		LS		#N/A	$0.00	$0
CONSTRUCT CONTAMINATED WATER STORAGE POND						
Excavate pond		m3		#N/A	$0.00	$0
Doze & spread excavated material		m3		#N/A	$0.00	$0
Vegetate spread material		ha		#N/A	$0.00	$0
Bedding layer		m3		#N/A	$0.00	$0
Supply geomembrane		m2		#N/A	$0.00	$0
Install geomembrane		m2		#N/A	$0.00	$0
Erosion protection layer		m3		#N/A	$0.00	$0
CONSTRUCT PASSIVE TREATMENT SYSTEM (e.g. Constructed Wetland)						
Construct access roads		km		#N/A	$0.00	$0
Install HDPE piping system from collection pond		m		#N/A	$0.00	$0
Inter-cell flow structures		allow		#N/A	$0.00	$0
Install liners		m2		#N/A	$0.00	$0
Install growth media		m3		#N/A	$0.00	$0
Wetland vegetation		ha		#N/A	$0.00	$0
CONSTRUCT WATER TREATMENT PLANT						
Build treatment plant		LS		#N/A	$0.00	$0
Build sludge containment facility		LS		#N/A	$0.00	$0
					Total	$482,595

For cost of long-term/post-closure water treatment see "WATER TREATMENT" Worksheet"

1 **Post Closure Water Treatment - Identified as long term/post-closure in 'Instructions' worksheet**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
ADDITION OF REAGENTS TO WTP						
H2O2		kg		#N/A	$0.00	$0
lime		kg		#N/A	$0.00	$0
ferric sulphate		kg		#N/A	$0.00	$0
ferrous sulphate		kg		#N/A	$0.00	$0
flocculents		kg		#N/A	$0.00	$0
Other		kg		#N/A	$0.00	$0
LABOUR AND SUPPLIES						
Annual fuel		litres		#N/A	$0.00	$0
Annual power		kW-h		#N/A	$0.00	$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	$0.00	$0
Equipment maintenance and parts		allow		#N/A	$0.00	$0
Misc. supplies, hoses, tools		allow		#N/A	$0.00	$0
Communications		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
WATER MANAGEMENT						
Water Treatment (reagents, equip. Op., labour)		m3	154,740	AE	$0.62	$95,939
Water pumping from sumps and ponds to treatment plant		allow	1	AE	$29,367.83	$29,368
Annual Treatment Plant Servicing (2 Consultants x 7days/year)		manhours	168	LAB-SS	$120.00	$20,160
Treatment Plant Servicing Travel Allowance (Round Trip Flight/person)		visits	2	AE	2500.00	$5,000
WTP WATER SAMPLING AND ANALYSES						
Sampling equipment		allow		#N/A	$0.00	$0
Analyses		allow		#N/A	$0.00	$0
Shipping to laboratory		allow		#N/A	$0.00	$0
Reporting		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
SITE ACCESS						
Road maintenance (incl. snow removal)		allow	1	AE	$50,000.00	$50,000
Winter road tariff		allow		#N/A	$0.00	$0
Truck rental		allow		#N/A	$0.00	$0
Air support		allow		#N/A	$0.00	$0
					Annual water treatment costs	$200,467
Number of years of water treatment		years	11			
					Total	$2,205,133

1 **Interim Care and Maintenance**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
INTERIM CARE & MAINTENANCE						
on-site caretaker		manmonths		#N/A	0	$0
extra personnel		manmonths		#N/A	0	$0
-electrician		manmonths		#N/A	0	$0
-mechanic		manmonths		#N/A	0	$0
annual fuel		litre		#N/A	0	$0
misc. supplies		allow		#N/A	0	$0
pick-up truck		each		#N/A	0	$0
small dozer		allow		#N/A	0	$0
small excavator		allow		#N/A	0	$0
snow machine		allow		#N/A	0	$0
communications		allow		#N/A	0	$0
SNP/AEMP water sampling & reporting		each		#N/A	0	$0
geotechnical assessment		each		#N/A	0	$0
interim water treatment		each		#N/A	0	$0
other		each		#N/A	0	$0
			Annual	Interim C&M Cost		$0
Number of years of ICM		years			**Total**	$0

1 **Post-Closure Monitoring & Maintenance:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MONITORING & INSPECTIONS						
Annual geotechnical inspection		each	1	VIH	$7,977.79	$7,978
Surface water sampling		each	1	WSH	$10,000.00	$10,000
Ground water sampling		each	1	WSH	$10,000.00	$10,000
Receiving/downstream water sampling		each	1	WSH	$10,000.00	$10,000
Monitoring program	Assumed	ech	1	AE	$100,000.00	$100,000
Survey inspection		each		#N/A	$0.00	$0
Regulatory costs*		each		#N/A	$0.00	$0
Site water monitoring (AEMP and SNP)		each		#N/A	$0.00	$0
- Active closure and flooding		each		#N/A	$0.00	$0
- Post pit flooding		each		#N/A	$0.00	$0
Air Quality Monitoring Program (AQMP)		each		#N/A	$0.00	$0
Wildlife Effects Monitoring Program (WEMP)		each		#N/A	$0.00	$0
Vegetation Monitoring		each		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
COVER MAINTENANCE						
Repair erosion - infill gullies		allow		#N/A	$0.00	$0
Repair erosion - upgrade diversion ditches		allow		#N/A	$0.00	$0
Remove problem vegetation		allow		#N/A	$0.00	$0
Repair animal damage		allow		#N/A	$0.00	$0
Repair/upgrade access controls		allow		#N/A	$0.00	$0
Other				#N/A	$0.00	$0
SPILLWAY MAINTENANCE						
Repair erosion		m3		#N/A	$0.00	$0
Clear spillway		each		#N/A	$0.00	$0
CWTS MAINTENANCE						
Maintain flow, restore vegetation		allow		#N/A	$0.00	$0
WATER TREATMENT						
Water treatment - refer to water treatment tab		each	1	WT tab	$200,466.63	$200,467
POST-CLOSURE WATER TREATMENT						
Subtotal, Annual post-closure costs						$338,444
Discount rate for calculation of net present value of post-closure cost, %				3.00%		
Number of years of post-closure activity				11	years	
Present Value of payment stream						$3,131,499

*Regulatory costs - annual reporting, management plans, progress reports etc

1 **Mobilization/Demobilization:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MOBILIZE HEAVY EQUIPMENT						
Excavators		each		#N/A	0	$0
Dump trucks		each		#N/A	0	$0
Dozers		each		#N/A	0	$0
Demolition shears	use of hoe ram and cutting torches	each				
				#N/A	0	$0
Crane		each		#N/A	0	$0
Loader		each		#N/A	0	$0
Compactor		each		#N/A	0	$0
Light duty vehicles		each		#N/A	0	$0
MOBILIZE MISC. EQUIPMENT						
Pump shipping		each		#N/A	0	$0
Pipe shipping		m		#N/A	0	$0
Minor tools and equipment		allow		#N/A	0	$0
Truck tires		allow		#N/A	0	$0
Other				#N/A	0	$0
MOBILIZE CAMP						
Maintain Camp Accomodations		mandays	13748	ACCML	100	$1,374,833
Reclamation activities		allow		#N/A	0	$0
Long term reclamation activities (eg pump flooding)		allow		#N/A	0	$0
MOBILIZE WORKERS						
Reclamation activities - travel time		manhours	21066	AE	80	$1,685,257
Crew transportation (ticket and travel accomodation)		each	585	AE	3300	$1,931,024
Reclamation activities - transport		each		#N/A	0	$0
Long term reclamation activities (eg pump flooding) - travel time		manhours	2503	#N/A	80	$200,229
Long term reclamation activities (eg pump flooding) - ticket and travel accomodation		each	70	AE	3300	$229,429
Monitoring Airfare		each		#N/A	0	$0
WORKER ACCOMODATIONS						
Reclamation activities		manmonths		#N/A	0	$0
Long term reclamation activities (eg pump flooding)		manmonths		#N/A	0	$0
MOBILIZE FUEL						
Fuel freight - reclamation activities		litre		#N/A	0	$0
Fuel freight - long term reclamation activities		litre		#N/A	0	$0
Fuel freight accomodations		litre		#N/A	0	$0
WINTER ROAD						
Construction and operation		km		#N/A	0	$0
Limited winter use		km		#N/A	0	$0
Winter road tariff		km		#N/A	0	$0
DEMOBILIZE HEAVY EQUIPMENT						
Excavators		km		#N/A	0	$0
Dump trucks		km		#N/A	0	$0
Dozers		km		#N/A	0	$0
Demolition shears		km		#N/A	0	$0
Crane		km		#N/A	0	$0
Loader		km		#N/A	0	$0
Compactor		each		#N/A	0	$0
Light duty vehicles		km		#N/A	0	$0
Other		km		#N/A	0	$0
DEMOBILIZE CAMP						
		allow		#N/A	0	$0
DEMOBILIZE WORKERS						
crew travel time		mandays		#N/A	0	$0
crew transportation		each		#N/A	0	$0
WINTER ROAD						
Construction and operation		km		#N/A	0	$0
Limited winter use		km		#N/A	0	$0
Winter road tariff		km		#N/A	0	$0
					Total	$5,420,771

Note: Labour costs not included under mobilization - included elsewhere

Assumptions

Stage/description	Duration (years)	2 shifts - day # Staff - permanent	hours/person	days/year	total hours	3 weeks rotation crew transportation/year	Total crew transportation
Active closure, back-flooding, treatment, monitoring	1	30	12	182.5	65700	261	261
Passive closure, back-flooding, treatment, monitoring	7	8	12	122	81760	46	324
Post-closure, treatment, monitoring	3	4	12	122	17520	23	70
Post-closure - assumed no monitoring will be necessary (walk away condition)	0						
Total	11						

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