Water Resources
Nunavut Regional Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

Your file - Votre référence
2BM-ULU0914

February 12, 2015

Our file - Notre référence
CIDM# 889565

Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0A 1J0

Re: 2BM-ULU0914 – Bonito Capital Corporation – Ulu Gold Project – Renewal Application – 2014 Security Assessment

Dear Phyllis Beaulieu:

Thank you for your email on January 12, 2015 regarding the security assessment for the Ulu Gold Project.

The Water Resources Division of Aboriginal Affairs and Northern Development Canada (AANDC) submitted a review of the Bonito Capital Corporation (BCC) application to renew Type B water licence 2BM-ULU0914 for the Ulu Gold Project on August 22, 2014. On January 12, 2015, the Nunavut Water Board (Board or NWB) distributed a revised reclamation cost estimate (BCC, 2014) for review by interested parties.

SENES Consultants (SENES) was retained by AANDC to perform a desktop review of the 2014 reclamation cost estimate (2014 estimate) and the results of the review are enclosed for the Board's consideration.

The review was based on information provided in the following documents:

- Reclaim Estimate Basis of Costing (BCC, 2014)
- Interim Closure and Restoration Plan (March 2013)
- Brodie Consulting Ltd. Reclamation Cost Review (December 28, 2011)
- Mine Site Reclamation Policy for Nunavut (INAC, 2002)
- Mine Site Reclamation Guidelines for the Northwest Territories (INAC, 2007)
- RECLAIM model, version 7 (Brodie Consulting Ltd., March 26, 2014)

The 2014 estimate does not appear to be a significant improvement from the estimate filed with the renewal application. There remain a number of items that are deficient and or for which estimated costs do not include adequate funds for completion of the work.

There are material uncertainties within the 2014 estimate including:

- The scope of work in the Interim Closure and Restoration Plan (ICRP) is inconsistent with the scope of work in the 2014 estimate. For instance, some of the items identified in

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the ICRP have been left off or were under-scoped in the reclamation estimate. The reclamation estimate should be based on the ICRP, and the scope of work should be consistent between the two documents. If there are changes to the scope of work, the ICRP needs to be updated to reflect such changes.

- There is uncertainty on where the unit rates have come from. The unit rates seem to be based on vendor quotes with no back up. The SENES estimate adopted many of the unit rates since they are based on contractor's quotes. However, BCC needs to provide detailed information to support the quotes so it is clear what is accounted for and what assumptions were made.

The 2014 estimate developed by BCC is $1,648,542. The Minister of AANDC currently holds $1,685,210 required under Part B, Item 2 of the existing water licence 2BM-ULU0914. Based on a preliminary review, it is of our opinion that the BCC 2014 estimate is insufficient to cover the total outstanding reclamation liability of the mine site. SENES prepared a RECLAIM estimate based on the information provided by BCC and a significant increase to the total financial security (to $7.5 million) is recommended. Please refer to the enclosed SENES memo for further details.

Additionally, the current ICRP and RECLAIM estimate provided by BCC do not meet the recommendations outlined in the AANDC Water Resources letter dated December 30, 2011 or the NWB technical Review Memorandum of August 22, 2014. The documents provided do not:

- Provide a detailed Abandonment and Restoration (A&R) plan which outlines how all components of the mine facility and associated wastes are to be managed (e.g., the waste rock and issues with PAG rock).
- The cost estimate is not sufficiently detailed to allow for a thorough third party review. There are no details on methodologies, cost or quantity assumptions.
- The cost estimate and A&R plan have not been signed by a licenced Professional Engineer.

AANDC requests that the requested information is made available prior to licence issuance. Alternatively, the total financial security required under a renewed licence should take into account the remaining uncertainties and be adjusted accordingly.

Should you have any questions or comments, please do not hesitate to contact me at (867) 975-4738 or by e-mail at Jean.Allen@aandc-aadnc.gc.ca.

Sincerely,

Jean Allen
Water Management Specialist

Enclosure: SENES Comments on Revised BCC 2014 RECLAIM estimate, February 10, 2015

cc. Andrea Morgan, A/Manager of Water Resources, AANDC
Erik Allain, Manager of Field Operations, AANDC
Karen Costello, Director of Resource Management, AANDC

SENES Consultants
AN ARCADIS COMPANY

Mailing Address:
4915-48th Street, Unit 23
Yellowknife, NT
Canada X1A 3S4

3rd Floor - NWT Commerce Place
4921 - 49th Street
Yellowknife, NT X1A 3S5

Tel: (867) 669-2092 ext. 226
Cell: (867) 445-2587
Fax: (867) 669-2093
E-mail: smontgomery@senes.ca

MEMORANDUM

TO: Jean Allen, AANDC Nunavut 400103

FROM: Charles Gravelle, Gerd Wiatzka February 10, 2015
CC Shelagh Montgomery

SUBJ: Bonito Capital Corporation Ulu Gold Project Water Licence Renewal Application –
SENES Comments on Revised December BCC 2014 RECLAIM Estimate

1. OVERVIEW

We have completed a review of the December 2014 RECAIM Estimate prepared by Delta/Carter, on behalf of Bonito Capital Corporation (BCC), and find there are a number of items that are in our opinion either deficient or for which the estimated costs do not include adequate funds for completion of the work. In general, the use of the RECLAIM model is to ensure that all decommissioning items are appropriately accounted for in the closure estimate. From our review of the BCC estimate, it appears that some of the items identified in the closure plan have been left off or under-scoped in their RECLAIM model estimate for site closure.

The BCC 2014 estimate and Interim Closure and Reclamation Plan documents are not significant improvements over the documentation filed earlier by BCC as part of an Elgin Mining Inc. water licence renewal application. We are somewhat uncertain as to what reclamation work is to be undertaken as there appears to be some difference between the remedial scope of work outlined in the Interim Abandonment and Closure Plan (IACP) as compared to the scope of work included in the RECLAIM estimate.

Furthermore we don't know where many of the BCC unit rates have come from, as most of the rates are simply based upon vendor quotes with no backup. Although we may not concur with some of the unit rate data provided by BCC, where the rates were in general agreement with the RECLAIM model rates (2011 and 2014), we have adopted many of these rates in our review of the estimate. Where we have used different rates they are based on current unit rates for similar work based on our northern experience.

As part of this review, we have prepared a RECLAIM cost estimate based upon the information available. The model is appended to this memo (Appendix A). The comparison between the SENES and BCC estimate is summarized in Table 1 below.

TABLE 1 Comparison of RECLAIM Estimates

Closure Cost	BCC Estimate	SENES Estimate
Direct Costs		
Underground Mine	$230,850	$317,290
Rock Pile	$113,400	$422,679
Buildings and Equipment	$385,400	$859,777
Chemicals and Soil Management	$117,200	$749,368
Water Management	$4,800	$29,600
Monitoring and Maintenance	$65,000	$322,500
Post Closure Monitoring	$120,217	Incl. above
Direct Costs Subtotal	**$1,036,867**	**$2,701,214**
Indirect Costs		
Mobilization/Demobilization	$317,300	$3,714,900
Project Management (3% vs 5%)	$40,625	$135,061
Insurance (~0% vs 1%)	$10,000	$27,012
Engineering (3% vs 10%)	$40,625	$270,121
Contingency (15% vs 25%)	$203,125	$675,303
Indirect Costs Subtotal	**$611,675**	**$4,822,397**
Total Costs	**$1,648,542**	**$7,523,612**

SUMMARY COMMENTS

As seen from Table 1, our direct estimated closure costs are approximately 2.5 times the cost carried by BCC. Indirect costs are even higher, in the order of 4.5 times the BCC estimate. While all estimate line items are higher than those carried by BCC, the largest contributor to the difference are costs associated with winter road mobilization and demobilization (representing a difference of approximately $3.4 million).

In summary, it is our opinion that closure costs as developed by BCC are well below the anticipated costs to close the site. Based upon this preliminary review, we would increase the costs as shown in Table 1 to about $7.5 million for the stated closure measures and mobilization using an independent winter road starting at the Ekati Diamond Mine winter road turn off.

Material uncertainties within this cost estimate relate to the status at the time of closure of: a) on-site residual fuels (i.e., condition, amount and consumption estimates - affects the volume of fuel supply needed and fuel volume disposal requirement), and b) whether the existing equipment

fleet could be operational for use during the reclamation program. Currently the SENES RECLAIM estimate includes $965,000 for the removal of all existing fuel and the supply of equipment to complete the reclamation program.

Note, in addition to the above, costs could also increase if additional contaminated soils were found on site or could decrease if less waste rock was proven to be acidic.

2. REVIEW OF THE BCC 2014 RECLAIM COST ESTIMATE

This review is based on the following information included in the documentation provided by AANDC:

- BCC Interim Abandonment and Closure Plan (March 2013);
- BCC RECLAIM cost estimate (December 2014);
- AANDC Letter on the Water Licence Renewal Application by BCC (August 2014);
- Water Licence to MMG Resources Inc from NWB (October 2009).

In addition, the Mine Site Reclamation Policy for Nunavut (INAC, 2002) and the Mine Site Reclamation Guidelines for the NWT (INAC, 2007), along with 2013 and 2014 inspection reports, and the latest version of the RECLAIM model were reviewed as part of this assignment. For clarity, while the reviewers have extensive relevant northern experience, they have not been to site and opinions expressed are based solely on the information provided by AANDC.

Unit rates represent a significant variable in all cost estimates, particularly in the North. Although we may not concur with some of the unit rate data, given they were based upon contractor quotations provided to BCC, we have adopted many of these rates in our review of the estimate. Where we have used different rates they are based on current unit rates for similar work based on our northern experience.

Discussions of estimate items by major mine components are provided in the following subsections.

2.1 Underground Mine

- BCC used a unit rate of $\$2,350/m^3$ for the construction of a mine seal on the vent raise which is low compared to the RECLAIM rate of $2,800 for this work. Notwithstanding the inspection work completed by Delta/Carter on behalf of BCC it is our experience that the higher unit rate should be used for this work given the remoteness of the site and the challenges in constructing these mine seals.
- It has been assumed that the BCC estimate has made an allowance of $5,000 for the removal of the 400 m^3 of material currently in place at the portal entrance. We concur with this rate however it should be confirmed that the cost item was to cover this work.

- The BCC estimate has not accounted for the backfilling of the portal. Using the RECLAIM rate of $14.30/m^3$ and an estimated volume of 800 m^3 the cost to backfill the portal would be $11,440.
- In order to gain access to the underground areas it has been assumed that an ice plug will need to be removed. The BCC estimate provides a lump sum rate of $200,000 for the removal of the ice plug, however, no backup has been provided. From the Brodie 2011 RECLAIM estimate, it has been assumed this work would be valued at just under $15,000 however this value is not consistent with the level of effort one would assume based on the BCC Interim Abandonment and Closure Plan. From the IACP it has been assumed that the depth of permafrost is 440 m and, in order to operate underground, both the portal and vent raise would need to be unplugged. Given the amount of work required to remove the ice plug, it is our opinion that the level of effort included in both the Brodie 2011 estimate and the BCC estimate may be under-scoped. However, for the purposes of this review, we have assigned $200,000 to this item.
- BCC made no allowance for engineering design and inspection costs.
- The BCC estimate does not include any costs for the upgrading of the vent raise collar which will require attention further to the inspector's report. An allowance of $50,000 has been included in our estimate of the work.

2.2 Rock Pile

- BCC indicates stabilizing of slopes will be done, however from the descriptions provided in the RECLAIM estimate, it is unclear if they are referring to the grading of the ore pad and camp pad slopes. From the quantities of material noted, 800 and 400 m^3 respectively, it can be assumed that BCC are referring to the ore and camp pad slopes. The unit rate for the regrading of these areas is considerably higher than the Brodie 2011 cost estimate, however the rates of $13.25 and $12.00 $/m^3$ are based on their inspection of the work areas and, as such, would be project specific costs. We have used the BCC rates for this cost item.
- BCC indicates that 400 m^3 of fill material will be required for a toe buttress, however from the description of the reclamation work in the IACP, it is not clear what work is being referenced. We have not considered this cost item in our estimate.
- The BCC estimate does not account for the final grading of the waste rock within the waste pad area. Of the 42,000 $m^3$of waste rock (volume from Brodie 2011 estimate) BCC has assumed that only 12,000 m^3 of waste rock would be relocated underground as it has been considered potential acid generating (PAG) rock. In the absence of any additional information, we would recommend using the assumptions included in the Brodie 2011 estimate which assumed 21,000 m^3 of waste rock would be placed underground. This would leave some 21,000 m^3 of waste rock to be graded out within the waste pad area. The unit rate used for the re-grading work is $0.77/m^3$.
- Further to the comment above, the unit rate and quantity of waste rock to be placed underground should also be updated. From the 2011 RECLAIM model for similar work a rate of $9.95/m^3$ should be applied to a volume of 21,000 m^3.

- The relocation of 1,222 m^3 of ore from the waste pad to the underground is also missing from the BCC estimate. Given the nature of the work, the same unit rate used for the waste rock going underground would be applied for this work task.
- It is not clear if BCC has made any provisions for geotechnical inspection of the waste rock and ore material into the underground. For the purposes of the SENES estimate, we have assumed the 20 days included in the Brodie 2011 estimate at a rate of $1000 per day for the inspection work.
- BCC has made no allowance for vegetation yet the water licence requires vegetation. As a minimum, we would suggest selected areas be vegetated. We would allow for 5 ha at $5000/ha.
- The IACP makes mention of completing additional testing of the waste rock however the BCC RECLAIM estimate does not have any costs included for the additional testing prescribed for the waste rock in the water licence renewal review comments. We believe an allowance of $75,000 is reasonable to complete the required testing and reporting.
- BCC has made no allowance for dewatering ponds or treating pond water if required. This cost is highly uncertain as no treatment may be necessary but labour will be required to dewater the ponds. For planning we have allowed for $50,000 to manage water discharges at closure.

2.3 Buildings and Equipment

- It was assumed by BCC that their estimates are comprehensive and include full remediation and removal of the buildings and associated tank farms.
- No allowance has been made for the decommissioning and decontamination of the existing equipment on site. For the purposes of the SENES estimate we have assumed $40,000 as used in the Brodie 2011 estimate. An additional $70,000 would be required to transfer the equipment off-site for disposal as per the IACP.
- The BCC estimate does not provide a breakdown of the costs for the dismantling of the camp and associated infrastructure on site. While the costs appear reasonable for the dismantling and off-site removal of the camp, kitchen and trailers (10) it is unclear what is meant by the boneyard or what is in the bone yard. For the purposes of the SENES estimate and given these uncertainties, we have added 25% to the BCC costs. It is recommended that BCC provide a breakdown of the type and quantity of waste present in the boneyard.
- The BCC estimate has made allowances for the decommissioning and disposal of two tank farms as noted in the IACP document, however it is unclear as to how the rates provided were derived. It would appear that the disposal of the tanks within the tank farms has not been included in the BCC RECLAIM estimate. From the Brodie 2011 estimate, there is approximately 1500 m^2 of steel tank to be dismantled and from the IACP the scrap steel is to be transferred off-site for disposal. The cost to dismantle the tanks can be estimated from the RECLAIM unit rates at $240/$m^2$ (special unit rate for hydraulic shear work) for a total of $360,000. The disposal of the scrap metal would be incidental to this cost. Given that the cost for the tank demolition would be considered high, we have assumed that the costs associated with the removal of the liner systems and disposal of non-soil debris would be included in the cost above.

- The BCC estimate does not make any allowances for the crushing and disposal of the 450 barrels remaining on site (Brodie 2011 estimate). For the purposes of the SENES estimate, we have used the Brodie 2011 line item cost ($9,900).
- Grading and contouring of the work areas is included in the BCC estimate however the unit rate is very low when compared to the RECLAIM rates and the area to be graded is also low. We have used a rate of $\$0.77/m^2$ for an area of 29,600 m^2 (as noted in the Brodie 2011 estimate).
- The BCC estimate includes an allowance for the scarifying of the roadways but not the airstrip (inconsistent with the IACP which included for scarifying of the airstrip). The unit rate is also low compared to the RECLAIM rate. We have used a rate of $3,215/km for a total of 14 km of road and 5 km of airstrip (1.2 km times 4 for the four passes that would be required given the airstrip width relative to the roadway width). The cost derived from these updated quantities and rates would be $61,085.
- The removal of six culverts is also missing from the BCC estimate. The estimated cost for the removal and disposal of the culverts would be $6,000 as quoted in the Brodie 2011 estimate.

2.4 Chemicals and Soil Contamination

- No allowance has been made for any environmental site assessment work. Assume $350,000 to complete a Phase I/II ESA program post closure.
- No allowance for management of a residual fuel inventory. The Brodie 2011 estimate assumed 483,268 litres of fuel while the IACP assumes 52,995 litres of residual fuel where the fuel inventory would be used during the reclamation work and demobilization from site. We would recommend the higher volume be used in the estimate as it can't be guaranteed that the volume of fuel will be reduced from that reported in 2011. A unit rate of $1/litre, as noted in RECLAIM, would cover the transfer and disposal of this material. A conservative cost for the transfer and disposal of this material would therefore be $483,268. Of note, the IACP does not consider the flaring of residual fuels. Instead, it is assumed all residual fuels, not used during the reclamation works, would be shipped off-site for disposal. Furthermore we have assumed that the flaring of residual fuel will not be acceptable to the NWB however BCC may which to discuss this option with NWB in the future.
- No allowance has been made for the management of waste oil. The Brodie 2011 estimate assumed 100 litres of waste oil with a disposal cost of $112. Given the volume of fuel that will require off-site disposal we would suggest that the cost for the disposal of the waste oil is covered under the residual fuel cost.
- The IACP and BCC RECLAIM estimate suggests that the identified petroleum hydrocarbon (PHC) impacted soils (1074 m^3) would be treated on site. A unit rate of $\$100/m^3$ was used by BCC however in a recent program completed at the former Contwoyto Lake weather station a unit rate of $\$150/m^3$ was used to complete a PHC treatment program. We recommend that the higher rate be applied and as such the cost of completing the PHC impacted soil clean up would be $161,100.

- We could not find an allowance for management and disposal of the existing hazardous materials inventory in barrels (the actual inventory is unknown). Allow 2,000 kg @ $2.5/kg =$5,000 for removal and disposal.
- The cost assigned by BCC to assess and supervise the hazardous materials abatement program is low at $10,000. An allowance of $100,000 would be more reasonable given the duration of the remediation work, the amount of analytical testing and reporting requirements.

2.5 Water Management

- The BCC estimate includes the removal of the water collection system currently present on site. The costs provided are consistent with industry rates to remove and consolidate the piping and associated pumps however there is no accounting for the costs associated with off-site disposal of this debris material as specified in the IACP document. An additional $5,000 would be required to dispose of this material.
- The BCC estimate does not account for the costs associated with the decommissioning and disposal of the sewage treatment plant. Given that the treatment plant is a batch rotating biological contactor unit, the system can be easily decommissioned and disposed off-site. An allowance of $10,000 would be required to manage the decommissioning and disposal of the sewage treatment plant and associated piping.
- The decommissioning of the mine sump has not been accounted for in the BCC estimate. The costs for the final grading work have been included in previous work items. An allowance of $10,000 has been included in the SENES RECLAIM cost estimate to account for the decommissioning and off-site disposal of the liner material as stated in the IACP document.

2.6 Mobilization

The mobilization assumes all work can be completed in one calendar year. This is possible but if the work extended beyond one year, there would be additional costs which are not included in the SENES estimate. Furthermore BCC has assumed that the existing fleet of equipment on site will be available for use during the reclamation program and, as such, there will be no need to mobilize any heavy earthmoving equipment to site. This approach is inconsistent with the current Mine Site Reclamation Policy for Nunavut. Additional comments on mobilization/demobilization include:

- As stated above, the BCC estimate does not include for the mobilization of earthmoving equipment to site. We do not concur with this assumption and have assigned the costs included in the Brodie 2011 estimate to cover the costs associated with the supply of equipment to site ($485,000).
- No information has been provided by BCC regarding how the volume of fuel to be shipped to site was derived. In the absence of any backup, we recommend using the volume estimated by Brodie in their 2011 estimate (130,000 litres at a cost of $195,000).
- No allowance has been provided by BCC for the supply of small tools and equipment required to complete the reclamation program. The Brodie 2011 estimate included

$100,000 for miscellaneous tools and supplies. This amount has been included in the SENES estimate.

- No breakdown on how the cost for Mobilization and Housing of workers was derived. In the Brodie 2011 estimate approximately $50,000 was assigned to transportation for workers, however this would assume one flight during winter road construction season 1, a flight in and out for the summer reclamation work period and one flight for the winter road during the demobilization. There is no allowance for supply runs during the course of the winter or summer work periods. An allowance of $100,000 would be more realistic.
- The inferred camp operation cost included in the RECLAIM estimate by BCC is $100,000. This cost would cover the operation costs during the summer reclamation period but not the winter road construction periods. An allowance of $200,000 is more realistic given the increased camp costs during the winter period.
- No winter road costs have been assumed by BCC. It is unclear how BCC proposed to mobilize fuel and supplies to site and demobilized waste debris as outlined in the IACP without a winter road. Furthermore, the regulators have requested the security funding be based on the Ulu property being a stand-alone site independent of the Lupin mine and, as such, mobilization would be from Yellowknife. Given these requirements, for the purposes of the SENES estimate we have assumed that a winter road would need to be constructed from the Ekati road turn-off up to the Ulu mine using the former Lupin mine winter road routing. This would require the construction of 345 km of winter road during both the mobilization and demobilization (690 km in total). The current winter road construction rates provided in RECLAIM range between $1400 and $3600/km however during the estimating for the Contwoyto Lake weather station decommissioning program a unit rate of $4,000/km was provided by local suppliers to construct this winter road. For the purposes of this review, we have assumed the higher RECLAIM rate of $3,600/km for a total cost of $2,484,000.
- A winter road tariff was not considered by BCC in their estimate. Using the Brodie 2011 rates an additional $160,000 has been included in the SENES RECLAIM estimate to account for these associated costs.

2.7 Long Term Care and Site Maintenance

- The BCC estimate does not include for the preparation of Closure and Permit Plans or a final site audit. The Brodie 2011 estimate included $75,000 for this work. We have assumed this value in our evaluation of the reclamation estimate.
- The BCC estimate does include for annual geotechnical inspections for five years which is consistent with the program requirements however the unit rate of $7,000 per visit is too low. A cost of $15,000 per visit is more realistic when the cost of an air charter, the engineer's time and travel costs are considered along with reporting time. The NWB review also suggests a Post Monitoring period of 25 years and, as such, the number of inspections should be increased. For the purposes of this estimate we have assumed that after 5 years the period between inspections can be increased to once every two years up to the tenth year and then every five years thereafter.

- The BCC estimate includes for annual water sampling at five locations for five years. The rationale for this program is not supplied. Furthermore, the cost to prepare the letter reports and dialogue with the regulatory authorities is low at $1,000 per report. In the absence of any water sampling rationale, it is assumed that the water samples can be collected by the geotechnical engineer inspecting the site however the cost of reporting should be increased to $2,500 per report. Similar to the note above the number of inspections needs to increase to cover a period of 25 years.
- It is unclear as to what work is included in the costs under Post-Closure Site Maintenance. For example, if all equipment has been moved off-site, then how would 250 m^3 of material be moved to repair issues associated with surface erosion? Given the nature of the site and the minimal areas of surface disruption we have not assigned an allowance for this costing item.
- It is also unclear as to why, in the BCC RECLAIM estimate, there is a $25,000 allowance under "Other" for this scope of work. No such allowance has been included in the SENES estimate.

2.8 Other Factors

BCC has not provided costs for:

- Allowance for engineering services associated with the design and construction of the mine seals. An allowance of $25,000 has been assigned to the SENES estimate.
- Allowance for insurance. We have allowed **1%** of the estimated direct cost.
- Contingency. BCC has allowed for 15%. Given there has been no detailed engineering and this is a highly conceptual plan, we suggest **25%** would be more appropriate.
- BCC has allowed for 3% for the engineering work. This includes final design and field supervision of the works. We would recommend engineering costs of at least **10%** for this project.
- Project management costs were set at 3% by BCC. This is likely on the low side and suggest **5%** be used.
- Future site characterization may find larger inventories of contaminated soils, especially below the tank farm areas. We have not made provisions for additional contaminated material, but have assumed there is adequate contingency to address these costs.

In addition, the current IACP and RECLAIM estimate provided by BCC do not meet the recommendations outlined in the AANDC- Water Resources letter dated December 30, 2011 or the NWB technical Review Memorandum of 22 August 2014. The documents provided do not:

a) Provide a detailed Abandonment &Restoration plan which outlines how all components of the mine facility and associated wastes are to be managed (e.g., the waste rock and issues with PAG rock).
b) The cost estimate is not sufficiently detailed to allow for a thorough third party review. There are no details on methodologies, cost or quantity assumptions.
c) The cost estimate and A&R plan have not been signed by a licenced Professional Engineer.

APPENDIX A

SENES RECLAIM MODEL COSTING SPREADSHEETS

SUMMARY OF COSTS

CAPITAL COSTS

COMPONENT TYPE	COMPONENT NAME	TOTAL COST	LAND LIABILITY	WATER LIABILITY			
OPEN PIT	0	$0	$0	$0			
UNDERGROUND MINE	0	$317,290	$242,290	$75,000	230850		
TAILINGS	0	$0	$0	$0			
ROCK PILE	0	$422,679	$344,394	$78,285	$113,400		
BUILDINGS AND EQUIPMENT	0	$859,777	$598,777	$261,000	$385,400		
CHEMICALS AND SOIL MANAGEMENT		$749,368	$727,734	$346,634	$117,200		
WATER MANAGEMENT		$29,600	$0	$29,600	$4,800		
POST-CLOSUREMONITORING AND MAINTENANCE		$322,500	$82,500	$240,000	$185,217		
	SUBTOTAL	**$2,701,214**	**$1,995,695**	**$1,030,519**	$1,036,867	$1,664,347	1.605169
	PERCENTAGES		**74%**	**38%**			2.605169
MOBILIZATION/DEMOBILIZATION		$3,714,900	2,744,620	1,417,242	$317,300		
PROJECT MANAGEMENT	5%	$135,061	$99,785	$51,526	$40,625		
Bonding	0%	$0	$0	$0			
Taxes (GST on supplies) - est.	allowance	$0	$0	$0			
Insurance	1%	$27,012	$19,957	$10,305	$10,000		
ENGINEERING	10%	$270,121	$199,569	$103,052	$40,625		
CONTINGENCY	25%	$675,303.48	$498,924	$257,630	$203,125		
Market Price Factor Adjustment	0%	$0	$0	$0			
GRAND TOTAL - CAPITAL COSTS		**$7,523,612**	**$5,558,550**	**$2,870,274**	$611,675		
		$3,808,711.60			$1,648,542		4.563797

Underground Mine Name — UG Mine # *1*

ACTIVITY/MATERIAL	Unit	Qty	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: CONTROL ACCESS								
access portal (ice)	hr	1	loaderl	#####	$200,000	100%	$200,000	$0
remove 400 m3 matl blocking portal	hr		excavh	192.8	$0	0%	$0	$0
install ventation check access	hr		tradeh	66.1	$0	0%	$0	$0
geotechnical insp as per license	each		#N/A		$0	0%	$0	$0
Ditch, mat'l A	m3		#N/A	0	$0	0%	$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Berm	m3		#N/A	0	$0		$0	$0
concrete wall in 2 portals	m3		#N/A	0	$0		$0	$0
backfill portal 800 m3	m3	800	sc1l	14.3	$11,440	100%	$11,440	$0
backfill portal #2	m3		#N/A	0	$0		$0	$0
cap 5 raises	m3		#N/A	0	$0		$0	$0
cap vent raise	m3	11	#N/A	2350	$25,850	100%	$25,850	$0
cap shaft #1	m3		#N/A	0	$0		$0	$0
cap shaft #2	m3		#N/A	0	$0		$0	$0
backfill audits	m3		#N/A	0	$0		$0	$0
backfill open stope	m3		#N/A	0	$0		$0	$0
concrete cap over open stope	m3		#N/A	0	$0		$0	$0
other (remove interim wash rock seal)		1	#N/A	5000	$5,000	100%	$5,000	$0
	m3		#N/A	0	$0		$0	$0
OBJECTIVE: FLOOD MINE			#N/A					
Bulkheads to control water flow	each		#N/A	0	$0		$0	$0
supply/install pump & piping system	each		#N/A	0	$0		$0	$0
operate pumps to flood workings	m3		#N/A	0	$0		$0	$0
	m3		#N/A	0	$0		$0	$0
other			#N/A	0	$0		$0	$0
OBJECTIVE: HAZARDOUS MATERIALS			#N/A					
remove hazardous materials, U/G labor	ndays		#N/A	0	$0		$0	$0
off-site disposal costs on Chemicals sheet			#N/A	0				
remove/decontam. stationary & elect. equip	ndays		#N/A	0	$0		$0	$0
remove/decontam. mobile equipment	each		#N/A	0	$0		$0	$0
Remove misc. haz. mat & explosives	kg		#N/A	0	$0		$0	$0
WR from portal u/g 25000	m3	0	sc1h	8.596	$0		$0	$0
ore from portal u/g 1222 m3	m3	0	sc1h	8.596	$0		$0	$0
cont soil portal to u/g	m3	0	sc1h	8.596	$0		$0	$0
inert demoliation debris	m3	0	sc1h	8.6	$0	100%	$0	$0
SPECIALIZED ITEMS			#N/A					
Engineering design of mine seals and inspections	each	1	#N/A	25,000	$25,000		$0	$25,000
Upgrade of vent raise collar	each	1	#N/A	50000	$50,000		$0	$50,000
other			#N/A	0	$0		$0	$0
			Subtotal		$317,290	76%	$242,290	$75,000
						Pct Land	Total Land	Total Water

COMMENTS:

Rock Pile Name: **Rock Pile #: *1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: STABILIZE SLOPES								
load, haul and place in portal area	m3	800	drl	13.25	$10,600	50%	$5,300	$5,300
Remove seal from portal	m3	400	drl	12	$4,800	50%	$2,400	$2,400
flatten waste pad	m3	21000	drl	0.77	$16,170	50%	$8,085	$8,085
, ditch mat'l B	m3		#N/A	0	$0		$0	$0
Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0
, fill mat'l A	m3		#N/A	0	$0		$0	$0
, fill mat'l B	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
OBJECTIVE: COVER DUMP			#N/A					
Mat'l A	m3		#N/A	0	$0		$0	$0
Mat'l B	m3		#N/A	0	$0		$0	$0
Rip rap	m3		#N/A	0	$0		$0	$0
Vegetate	ha	5	#N/A	5000	$25,000	50%	$12,500	$12,500
Other			#N/A	0	$0		$0	$0
VERY LOW PERMEABILITY COVER			#N/A					
supply geomembrame, HDPE, ES3, GC	m2		#N/A	0	$0		$0	$0
upper and lower bedding layers	m3		#N/A	0	$0		$0	$0
install geomembrane, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0
erosion protection layer	m3		#N/A	0	$0		$0	$0
vegetate	ha		#N/A	0	$0		$0	$0
install infiltration/seepage instrumentatio	allow		#N/A	0	$0		$0	$0
OBJECTIVE: RELOCATE DUMPS			#N/A					
Load, haul, dump ore to portal 1222 m3	m3	1222	sc1h	9.95	$12,159	100%	$12,159	$0
Load, haul, dump PAG WR to portal 122	m3	21000	sc1h	9.95	$208,950	100%	$208,950	$0
Geologist for visual inspection	days	20		1000	$20,000	100%	$20,000	$0
Add lime	tonne		#N/A	0	$0		$0	$0
Contour reclaimed area	ha		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A					
Waste Rock Testing		1	#N/A	75000	$75,000	100%	$75,000	$0
Allowance for water treatment		1	#N/A	50000	$50,000		$0	$50,000
other			#N/A	0	$0		$0	$0
			Subtotal		$422,679	81%	$344,394	$78,285

% Land	Total Land	Total Water

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

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	
OBJECTIVE: DISPOSE MOBILE EQUIPMENT									
Decontaminate and ship off-site	each	1	#N/A	40000	$40,000	50%	$20,000	$20,000	
Decontaminate, dispose on-site	each		#N/A	0	$0		$0	$0	
Other (demob existing equipment)	each	1	#N/A	70000	$70,000	50%	$35,000	$35,000	
OBJECTIVE: BUILDING DECONTAMINATION & HAZ. MATERIAL REMOVAL			#N/A						
Decontaminate, oil, fuel and glycol systems	mandays		#N/A	660	$0		$0	$0	
Decontaminate fuel tanks	mandays		#N/A	660	$0	50%	$0	$0	
mechanical	mandays		#N/A	660	$0		$0	$0	
Electrical	mandays		#N/A	660	$0		$0	$0	
Decontaminate maintenance shop	each		#N/A	0	$0		$0	$0	
Decontaminate power plant	each		#N/A	0	$0		$0	$0	
Decontaminate bulk fuel storage	each		#N/A	0	$0		$0	$0	
Decontaminate ANFO plant	each		#N/A	0	$0		$0	$0	
Deontaminate offices/warehouse/accom	each		#N/A	20000	$0	50%	$0	$0	
Removal of asbestos siding on buildings	each		#N/A	0	$0		$0	$0	
Removal of friable asbestos on equipment	each		#N/A	0	$0		$0	$0	
Other			#N/A	0	$0		$0	$0	
OBJECTIVE: REMOVE BUILDINGS - **ALL BUILDING AREAS SCALED TO ACC**			#N/A						
Dismantle Ulu camp/shop/kitchen etc	m2	1	brw1l	######	$45,000	100%	$45,000	$0	
Dismantle trailers	m2	1	brw1l	######	$45,000	100%	$45,000	$0	
Dismantle shop	m2		brw1l	24.16	$0	100%	$0	$0	
Building 4 -Storage Facilites	m2		#N/A	0.00	$0		$0	$0	
Building 5 -Water and Wastewater Treatment Facilities	m2		#N/A	0.00	$0		$0	$0	
Building 6 -U/G Heating Plant	m2		#N/A	0.00	$0		$0	$0	
Building 7 - Emulsion Plant	m2		#N/A	0.00	$0		$0	$0	
Building 8 -AN Storage Facility	m2		#N/A	0.00	$0		$0	$0	
Building 9 -Warehouse, Shops and Other	m2		#N/A	0.00	$0		$0	$0	
Building 10 -Storage Facility at Laydown/Airstrip	m2		#N/A	0.00	$0		$0	$0	
Building 15 -Fuel tanks	m2	1500	brs1h	240.00	$360,000	100%	$360,000	$0	
Building 16 -Fuel Tanks	m2		#N/A	0.00	$0		$0	$0	
Building 23 -Freshwater intake	m2		#N/A	0.00	$0		$0	$0	
Building 26 Reclaim pumps	m2		#N/A	0.00	$0		$0	$0	
Building 27outfall &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	
consolidate & dump boneyard debris	m3	1	#N/A	200000	$200,000		$0	$200,000	
crushing 450 barrels	hr	150	#N/A	66	$9,900	100%	$9,900	$0	2 men at 66/hr
OBJECTIVE: BREAK BASEMENT SLABS			#N/A						
Building 1- Accom. Complex	m2		#N/A	0	$0		$0	$0	
Building 2 -Process Facilities	m2		#N/A	0	$0		$0	$0	
Building 3 -Offices, Repair, Lab, Warehouse	m2		#N/A	0	$0		$0	$0	
Building 4 -Storage Facilites	m2		#N/A	0	$0		$0	$0	
Building 5 -Water and Wastewater Treatment Facilities	m2		#N/A	0	$0		$0	$0	
Building 6 -U/G Heating Plant	m2		#N/A	0	$0		$0	$0	
Building 7 - Emulsion Plant	m2		#N/A	0	$0		$0	$0	
Building 8 -Warehouse, Shops and Other	m2		#N/A	0	$0		$0	$0	
	m2		#N/A	0	$0		$0		
	m2		#N/A	0	$0		$0	$0	
Other			#N/A	0	$0		$0	$0	
OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A						
Place soil cover	m3		#N/A	0.00	$0		$0	$0	
Vegetate	ha		#N/A	0	$0		$0	$0	
Landfill disposal fee	tonne		#N/A	0	$0		$0	$0	
OBJECTIVE: GRADE AND CONTOUR			#N/A						
Ulu camp	m2	2600	dsh	0.77	$2,002	100%	$2,002	$0	
Portal Pad	m2	8000	dsh	0.77	$6,160	100%	$6,160	$0	
Ore pad	m2	19000	dsh	0.77	$14,630	100%	$14,630	$0	assumes reworking of the 21,000 cu.m remaining after the material is
Building 4 -Storage Facilites	ha		#N/A	0	$0		$0	$0	
Building 5 -Water and Wastewater Treatment Facilities	ha		#N/A	0	$0		$0	$0	
Building 6 -U/G Heating Plant	ha		#N/A	0	$0		$0	$0	
Building 7 - Emulsion Plant	ha		#N/A	0	$0		$0	$0	
Building 8 -Warehouse, Shops and Other	ha		#N/A	0	$0		$0	$0	
place rock cover	m3		#N/A	0	$0		$0	$0	
Vegetate	ha		#N/A	0	$0		$0	$0	
other	m3		#N/A	0	$0		$0	$0	
OBJECTIVE: LINED SUMPS			#N/A						
puncture liner and place soil cover	m3		#N/A	0.00	$0		$0	$0	
OBJECTIVE: RECLAIM ROADS			#N/A						
Remove culverts	each	6	#N/A	1000	$6,000		$0	$6,000	
Remove bridges	each		#N/A	0	$0		$0	$0	
Scarify and install water breaks	ha		#N/A	0	$0		$0	$0	
scarify airstriip	ha	5	scfyl	3215	$16,075	100%	$16,075	$0	
scarify roads	ha	14	scfyl	3215	$45,010	100%	$45,010	$0	
scarify laydown areas	ha		#N/A	0	$0		$0	$0	
Vegetate	ha		#N/A	0	$0		$0	$0	
other			#N/A	0	$0		$0	$0	
SPECIALIZED ITEMS			#N/A						
Dispose of misc. debris and laydown area refuse	m3	0	sc1h	8.5958	$0		$0	$0	barrels
load haul dump tanks and camp at portal	m3	0	sc1h	8.5958	$0		$0	$0	375.5 total fuel and building
				Subtotal	$859,777	70%	$598,777	$261,000	
						Pct Land	Total Land	Total Water	

Chemicals and Soil Contamination:

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost	
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.									
.									
HAZARDOUS MATERIALS AUDIT									
Phase 1 audit	each	1	#N/A	50000	$50,000	50%	$25,000	$25,000	
Phase 2 audit	each	1	#N/A	25000	$300,000	100%	$300,000	$0	
HAZARDOUS MATERIALS TO BE CONSOLIDATED FOR REMOVAL									
Waste oils	litre	100	#N/A	0.00	$0		$0	$0	
Fuel - Type 1, eg diesel dregs	litre	483268	#N/A	1	$483,268	50%	$241,634	$241,634	assumes fuel in all the tanks and cou
Fuel - Type 1, eg gasoline dregs	litre		#N/A	0	$0		$0	$0	
waste batteries	kg		#N/A	0	$0		$0	$0	
assay & environmental lab reagents	pallet		#N/A	0	$0		$0	$0	
machine shop, paints, solvents etc	litre		#N/A	0.9	$0		$0	$0	
contaminated soils - hydrocarbon	m3		#N/A	0	$0		$0	$0	
metal contam. soil at conc. load-out	m3		#N/A	0	$0		$0	$0	
glycol	litre		#N/A	1.15	$0		$0	$0	
HAZARDOUS MATERIALS			#N/A						
Transportation to disposal facility	allow		#N/A	0	$0		$0	$0	
Consolidate, Transport and Disposal fees	kg	2000	#N/A	2.5	$5,000		$0	$5,000	
other (supervision and assessment work for hazardous materials abatement)		1	#N/A	######	$100,000		$0	$100,000	
CONTAMINATED SOILS			#N/A						
Contam. soil investigation - technical	each		#N/A	0	$0		$0	$0	
Contam. soil investigation - drilling & samplir	each		#N/A	0	$0		$0	$0	
CONTAMINATED SOIL REMOVAL			#N/A		$0		$0	$0	
contaminated soils - hydrocarbon	m3	1074	sb2h	150	$161,100	100%	$161,100	$0	Contwoyto unit rate used.
. metal contam. soil at conc. load-out	m3		#N/A	0	$0		$0	$0	
. Load, haul, dump or doze	m3		#N/A	0	$0		$0	$0	
. Reagents/stabilizing agent	m2		#N/A	0	$0		$0	$0	
Contour reclaimed area	m3		#N/A	0	$0		$0	$0	
. Type 2, heavy fuel and oil	drums		#N/A	155	$0		$0	$0	
. CONTAMINATED SOIL VERY LOW PERMEABILITY COVER			#N/A						
. supply geomembrame, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0	
. upper and lower bedding layers	m3		#N/A	0	$0		$0	$0	
. install geomembrane, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0	
. erosion protection layer	m3		#N/A	0	$0		$0	$0	
vegetate	m2		#N/A	0	$0		$0	$0	
. install infiltration/seepage instrumentation	allow		#N/A	0	$0		$0	$0	
. other			#N/A	0	$0		$0	$0	
. OTHER			#N/A						
.			#N/A	0	$0		$0	$0	
			Subtotal		$749,368	97%	$727,734	$346,634	
						Pct Land	Total Land	Total Water	

1 Water Management :

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: WATER SUPPLY EMBANKMENT								
	Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0
	, fill mat'l A	m3		#N/A	0	$0		$0	$0
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Rip rap	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	$0
	Breach dam	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: UPGRADE SPILLWAY			#N/A					
	Excavate channel, mat'l A	m3		#N/A	0	$0		$0	$0
	, mat'l B	m3		#N/A	0	$0		$0	$0
	Concrete	m3		#N/A	0	$0		$0	$0
	Rip rap	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
	OBJECTIVE: BREACH EMBANKMENT			#N/A					
	remove fill	m3		#N/A	0	$0		$0	$0
	contour water intake area	m3		#N/A	0	$0		$0	$0
E	OBJECTIVE: STABILIZE SEDIMENT PONDS			#N/A					
	Decomissioin mine sump		1	#N/A	10000.00	$10,000		$0	$10,000
	doze & spread excavated material	m3		#N/A	0	$0		$0	$0
	Vegetate, spread material	ha		#N/A	0	$0		$0	$0
	Rip rap in channel base	each		#N/A		$0		$0	$0
F	OBJECTIVE: BREACH DITCHES			#N/A					
	Excavate breaches	m3		#N/A	0	$0		$0	$0
	backfill/recontour	m3		#N/A	0	$0		$0	$0
	install flow dissipation	m3		#N/A	0	$0		$0	$0
	vegetate remainder of ditch	m2		#N/A	0	$0		$0	$0
G	OBJECTIVE: REMOVE PIPELINES			#N/A					
	Remove pipes	m	1150	ppsl	4	$4,600		$0	$4,600
	Decomission and dispose of water treatment plant		1	#N/A	10000	$10,000		$0	$10,000
	Other (off-site disposal of pipe)		1	#N/A	5000	$5,000		$0	$5,000
H	Groundwater Collection - Long-term Collection System			#N/A					
	excavate/install sumps	m2		#N/A	0	$0		$0	$0
	install pumping wells	m3		#N/A	0	$0		$0	$0
	install pumps/pipelines/power supply			#N/A	0	$0		$0	$0
I	OBJECTIVE: COLLECT DRAINAGE FOR TREATMENT			#N/A					
	Excavate channel	m3		#N/A	0	$0		$0	$0
	doze & spread excavated material	m3		#N/A	0	$0		$0	$0
	Vegetate, spread material	ha		#N/A	0	$0		$0	$0
	Rip rap in channel base	each		#N/A	0	$0		$0	$0
	Construct contaminated water storage pond			#N/A					
	Excavation	m3		#N/A	0	$0		$0	$0
	supply geomembrame, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0
	upper and lower bedding layers	m3		#N/A	0	$0		$0	$0
	install geomembrane, HDPE, ES3, GCL	m2		#N/A	0	$0		$0	$0
	erosion protection layer	m3		#N/A	0	$0		$0	$0
J	OBJECTIVE: TREAT DRAINAGE (see "ONGOING			#N/A					
	Build treatment plant	LS		#N/A	0	$0		$0	$0
	build sludge containment facility	LS		#N/A	0	$0		$0	$0
				Subtotal		$29,600	0%	$0	$29,600
							Pct Land	Total Land	Total Water

1 Mobilization:

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	MOBILIZE HEAVY EQUIPMENT								
	Equipment to regional centre to site								
.	Excavators	each	1	#N/A	150000	$75,000		$0	$75,000
.	Dump trucks	each	1	#N/A	50000	$50,000		$0	$50,000
	Dozers	each	2	#N/A	150000	$75,000		$0	$75,000
	Demolition shears	each	0	#N/A	200000	$0		$0	$0
	barrel crusher	each	1		10000	$10,000		$0	$10,000
	concrete mixer	each	0	#N/A	5000	$0		$0	$0
	Light duty vehicles	each	1	#N/A	25000	$25,000		$0	$25,000
.	front end loader	each	1	#N/A	150000	$150,000		$0	$150,000
.	scoop tram	each	2	#N/A	50000	$100,000		$0	$100,000
	Equipment, regional centre to site			#N/A					
.	Excavators	km		#N/A	0.00	$0		$0	$0
.	Dump trucks	km		#N/A	0	$0		$0	$0
	Dozers	km		#N/A	0	$0		$0	$0
	Demolition shears	km		#N/A	0	$0		$0	$0
	Crane	km		#N/A	0	$0		$0	$0
	Light duty vehicles	km		#N/A	0	$0		$0	$0
.	loader	km		#N/A	0	$0		$0	$0
.	Other	km		#N/A	0	$0		$0	$0
B	MOBILIZE CAMP			#N/A					
.		allow		#N/A	150000	$0		$0	$0
C	MOBILIZE WORKERS			#N/A					
	crew travel time	andays		#N/A	600	$0		$0	$0
.	crew transportation	each	1	#N/A	100000	$100,000		$0	$100,000
D	MOBILIZE MISC. SUPPLIES			#N/A					
.	Fuel	litre	130000	#N/A	1.43	$185,900		$0	$185,900
.	Minor tools and equipment	allow	1	#N/A	100000	$100,000		$0	$100,000
.	Truck tires	allow		#N/A	50000	$0		$0	$0
	cement for vent raise 2880 kg	allow			4032	$0		$0	$0
	Delivery cement by plane	allow		#N/A	10000	$0		$0	$0
E	WORKER ACCOMODATIONS			#N/A					
.		allow	1	#N/A	200000	$200,000		$0	$200,000
F	WINTER ROAD			#N/A				$0	$0
.	2 year, const & operate section into Ulu	km	690	wrh	3600	$2,484,000		$0	$2,484,000
.	Limited winter use	km		#N/A	0	$0		$0	$0
.	Winter road tariff, 2,000T x 567 km X2	allow	1	#N/A	160000	$160,000		$0	$160,000
G	INTERIM CARE & MAINTENANCE			#N/A					
	on-site caretaker	annual		#N/A	95000	$0			
	spring extra personnel	months		#N/A	23750	$0			
	fuel and misc. supplies	litre		#N/A	0.6	$0			
	electrician	each		#N/A	3300	$0			
	mechnaic	each		#N/A	3300	$0			
	pick-up truck	each		#N/A	15000	$0			
	small dozer	allow		#N/A	25000	$0			
	small excavator	allow		#N/A	0	$0			
	snow machine	allow		#N/A	3000	$0			
	communications	allow		#N/A	25000	$0			
	Water licence sampling & reporting	each		#N/A	450000	$0			
	Geotechnical assessment	each		#N/A	10000	$0			
	Other	each		#N/A	0	$0			
				#N/A	&M cost	$0			
	Total C&M cost	years		#N/A	5	$0		$0	$0
					Subtotal	$3,714,900	0%	$0	$3,714,900
							Pct Land	Total Land	Total Water

1 Post-Closure Monitoring & Maintenance:

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: MONITORING & INSPECTIONS								
	Closure and Permit Plan	each	1	#N/A	$50,000	$50,000		$0	$50,000
.	Final Site Audit	each	1	#N/A	$25,000	$25,000		$0	$25,000
.	Geotechnical Inspection	each	11	#N/A	$15,000	$165,000	50%	$82,500	$82,500
	Site inspection year later	each		#N/A	$15,000	$0		$0	$0
	Receiving/downstream water sampling	each		#N/A	$0	$0		$0	$0
	Monitoring program as per plan	each	55	#N/A	$1,000	$55,000		$0	$55,000
.	on-site transportation	each		#N/A	$0	$0		$0	$0
	Reporting	each	11	#N/A	$2,500	$27,500	0%	$0	$27,500
.	Other			#N/A	$0	$0		$0	$0
B	OBJECTIVE: COVER MAINTENANCE			#N/A					
.	Repair erosion - infill gullies	allow		#N/A	$0	$0		$0	$0
.	Repair erosion - upgrade diversion ditch	allow		#N/A	$0	$0		$0	$0
.	Remove problem vegetation	allow		#N/A	$0	$0		$0	$0
.	Repair animal damage	allow		#N/A	$0	$0		$0	$0
.	Repair/upgrade access controls	allow		#N/A	$0	$0		$0	$0
	Other			#N/A	$0	$0		$0	$0
C	SPILLWAY MAINTENANCE			#N/A					
	Repair erosion	m3		#N/A	$0	$0		$0	$0
	Clear spillway	each		#N/A	$0	$0		$0	$0
	Other			#N/A	$0	$0		$0	$0
D	POST-CLOSURE WATER TREATMENT			#N/A					
	Annual water treatment cost, from Ongoing water			#N/A	$0	$0		$0	$0
	Subtotal, Annual post-closure costs					$322,500		$82,500	$240,000
	Discount rate for calculation of net present value of post-clos		0.00%						
	Number of years of post-closure activity		1	years					
	Present Value of payment stream					$322,500	$0	$82,500	$240,000
							Pct Land	Total Land	Total Water