

# Rio Algom Mining LLC

October 28, 2013

Mr. Tom McLaughlin  
United States Nuclear Regulatory Commission  
Mail Stop T-8F5  
Washington, DC 20555

Subject: Rio Algom Mining LLC – Ambrosia Lake Facility  
License No. SUA-1473, Docket No. 40-8905  
2013 Surety Update – License Condition #22  
Response to Request for Additional Information

Dear Mr. McLaughlin;

Rio Algom Mining LLC (RAML) is pleased to submit the attached detail as requested in the NRC issues Request for Additional Information dated August 27, 2013 for the above referenced source material license. The surety calculations are consistent with 10CFR40, Appendix A, Criteria 9 and 10.

- 1) Provide supporting information to justify cost estimates (10CFR Part 40, Appendix A, Criterion 9 and Appendix C, NUREG-1620)

- Well Decommissioning

A tab labeled Monitor Well Closure has been added to the attached Financial Assurance Cost Allocation worksheet. It specifies the number of drill holes to be plugged, depth and size of each drill hole, and material to be used for plugging including transportation and plugging. The cost of acquisition is not included as all wells are owned by RAML and lie within RAML property.

Approximately 3,702 linear feet of wells will be decommissioned at the contractor rate of \$36.27 per linear foot. The rate was determined based on the successful completion of similar work recently performed at the site for the New Mexico Environment Department. For that project, three bids were received from local drilling contractors and the successful bidder was chosen based on safety record, technical capabilities, cost and historical performance.

- Radiological Survey and Monitoring

A tab labeled Radiological Survey and Monitoring has been added to the attached Financial Assurance Cost Allocation worksheet. The cost for this activity was conservatively rounded up as this activity was previously handled by RAML personnel and will now be performed by a third-party.

The scope of work will include performing gamma scans on a spacing of 10 meters over the approximately 220 acres of the Section 4 pond area that previous characterization work identified residual contamination at depth. Confirmatory soil samples will be collected following the removal of approximately 30,000 CY of soil from Section 4. The soils samples will be tested for Uranium, Radium and Thorium as described in the approved Soil Decommissioning Plan incorporated into the site's Radioactive Material License. Additional environmental monitoring will be required for personnel performing the work. It is estimated this can be completed in 6 weeks and at the current rate of \$9,100/week currently being charged by our general contractor working at the site.

The current estimate for a Dose Assessment is a conservative estimate based on assumptions of the current billing rates of our radiological consultants.

- 2) Provide or justify cost estimates based on changes in reclamation plans (10CFR Part 40, Appendix A, Criterion 9 and Appendix C, NUREG-1620)
  - Proposed revisions to reclamation plans must be thoroughly documented and the basis for cost estimates must be detailed for NRC review and approval.

It was noted in the RAI that it was unclear if the 2013 surety update reflects the changes in cost resulting from the changes in scope. The updated construction plan for the contractor carrying out the site reclamation activities was merely a repackaging of a portion of the remaining construction activities required to fully close the site. Due to timing and corporate budget approval processes, RAML was only able to release a portion of the remaining activities for the 2013 construction season. The document "Design for Construction Mill Site Reclamation, Amendment 1" did not include any new engineering designs or any new reclamation plans. A future amendment is being prepared to release additional projects for the 2014 construction season. All items included in the current amendment, and pending future amendments, have been previously reviewed by the NRC and incorporated in the site's Radioactive Material License.

The total estimated cost to complete the work by a third-party remains at approximately \$15,853,181. The enclosed tables summarize the revisions 2013 surety calculations. Rio Algom Mining LLC currently retains a financial surety instrument in the amount of \$16,000,000. Rio Algom Mining LLC requests approval to retain the current financial surety instrument in place.

If you have any questions on this matter or require additional information, please contact me at (505) 287-8851 x 19 or by e-mail at [billy.wm.ray@bhpbilliton.com](mailto:billy.wm.ray@bhpbilliton.com).

Respectfully submitted,



Billy Ray  
Site Manager

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Tailings Reclamation**

June 30, 2013

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source
<u>Cleanup Hot Spots</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Contaminated Soil Removal	0	3.99	0	Complete - June 2013
Clean Soil Backfill	0	4.09	0	Complete - June 2013
<u>Site Wide Revegetation</u>	<u>Acres</u>	<u>\$/Acre</u>	<u>\$</u>	
Seeding and Mulch	350	952.00	333,200	Contractor Estimate
<u>100 Year Channel</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Channel Excavation	0	9.80	0	Complete - June 2013
Backfill and Embankment	0	3.60	0	Complete - June 2013
1" Rock Placement	45,330	4.41	199,905	Contractor Estimate
7.8" Rock Placement	31,070	11.59	360,101	Contractor Estimate
<u>Borrow Site Reclamation</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Overburden Excavation and Fill	580,000	0.85	493,000	Contractor Estimate
<u>Pond 7 &amp; 8 Erosion and Diversion</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Backfill	2,000	4.56	9,120	Contractor Estimate
Channel Excavation	10,000	13.44	134,400	Contractor Estimate
Channel Fill	10,000	3.32	33,200	Contractor Estimate
1" Rock Placement	20,000	5.28	105,600	Contractor Estimate
9.2" Rock Placement	5,000	10.27	51,350	Contractor Estimate

**Total      1,719,877**

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Groundwater**

June 30, 2013

Activity	Task Estimate	Source
Monitor Well Replacement	0	Complete - January 2013
Monitor Well Closure	134,301	Consultant Estimate
Stability Monitoring Program	78,186	Consultant Estimate
Monitoring (DP-169 & 362)	315,550	Consultant Estimate
<b>Total</b>	<b>528,038</b>	

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Mill Decommissioning**

June 30, 2013

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source
<u>Mill Yard Soils Clean-Up &amp; Pond Closure</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Contaminated Soil Consolidation	0	4.27	0	Complete - May 2013
Contaminated Soil Removal	0	5.52	0	Complete - May 2013
Clean Backfill and Regrading	127,000	5.11	648,970	Contractor Estimate
Radon Barrier Placement	6,700	16.14	108,138	Contractor Estimate
1" Rock Placement	675	5.41	3,652	Contractor Estimate
7.8" Rock Placement	425	7.67	3,260	Contractor Estimate
<u>Building Demolition</u>			<u>\$</u>	
Asbestos Disposal	Lump Sum		173,250	Contractor Estimate
Haz Waste Disposal	Lump Sum		5,253	Contractor Estimate
Building Demolition	Lump Sum		354,000	Contractor Estimate
Substation Fencing	Lump Sum		200,000	Contractor Estimate

**Total      1,496,523**

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Lined Pond Closure**

June 30, 2013

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source
<u>Pond 2 Cover Rock Purchase</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Pond 2 - Cover Rock Purchase - 1"	42,410	16.00	678,560	Contractor Estimate
Pond 2 - Cover Rock Purchase - 3.2"	12,299	16.00	196,784	Contractor Estimate
Pond 2 - Cover Rock Purchase - 7.8"	7,515	17.90	134,519	Contractor Estimate
Pond 2 - Cover Rock Purchase - 9.2"	4,748	17.90	84,989	Contractor Estimate
<u>Pond 2 Cover Placement</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Pond 2 - Cover Clay Placement	376,000	5.00	1,880,001	Contractor Estimate
Pond 2 - Regrade	211,000	2.76	582,360	Contractor Estimate
Pond 2 - Cover Rock Placement - 1" (Includes Apron)	42,410	4.07	172,608	Contractor Estimate
Pond 2 - Cover Rock Placement - 3.2"	12,299	12.31	151,404	Contractor Estimate
Pond 2 - Apron/Channel Rock Placement - 7.8"	7,515	11.56	86,873	Contractor Estimate
Pond 2 - Apron/Channel Rock Placement - 9.2"	4,748	11.02	52,317	Contractor Estimate
<u>Section 4 Hot Spot Removal</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Remaining Contaminated Soil	30,000	17.60	528,000	Contractor Estimate
Scanning and Survey	Lump Sum		300,000	Consultant Estimate
Dose Assessment	Lump Sum		275,000	Consultant Estimate
<u>Section 4 Final Contour</u>	<u>Acres</u>	<u>\$/Acre</u>	<u>\$</u>	
Regrade	300	256.00	76,800	Contractor Estimate
Reseed	300	952.00	285,600	
<u>Borrow Site Reclamation</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Overburden Excavation and Fill	555,000	0.85	471,750	Contractor Estimate
<u>Highway Overcrossing Removal</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>	
Bridge Removal and Demolition	Lump Sum		250,000	Contractor Estimate
<b>Total</b>			<b>6,207,566</b>	

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Monitor Well Closure**

Well ID	Total Depth (ft)	Cost Breakdown - Based on 2013 project for NMED	
<b>Alluvial Wells:</b>		Linear Feet Abandoned in 2013	1,534.39
5-03 R	56.25	Total Plug and Abandon Cost	55,659.00
5-04	64.05	Cost per foot	\$36.27
5-08 R	76.52	Future Linear Feet to Abandon	3,702.38
5-73 R	35.69		
31-61	29.32	<b>Estimated Cost</b>	<b>\$134,301.43</b>
31-65	41.47	Nominal 6" wells	
32-59	28.26	Plugged and abandoned in accordance with	
<b>TRB Wells:</b>		New Mexico Environment Department Ground Water Quality	
19-77 TRB	288.22	Bureau, Monitoring Well Construction and Abandonment	
31-02 TRB R	128.33	Guidelines, 2011.	
31-67 TRB	97.52	Work estimated based on:	
36-01 TRB	58.41	The reaming of the wells	
36-02 TRB	57.51	Grout backfill	
<b>TRA Wells:</b>		Surface reclamation	
30-01 TRA	207.35	Reseeding	
31-01 TRA R	213.58		
33-01 TRA	181.31		
<b>Dakota Wells:</b>			
5-02 KD	190.54		
17-01 KD	807.90		
30-02 KD	313.38		
30-48 KD R	358.59		
32-45 KD R	269.91		
36-06 KD	198.27		
<b>Total Linear Feet</b>	<b>3,702.38</b>		
Data from 1st Half 2013 semi-annual NRC report			

**RIO ALGOM MINING LLC - AMBROSIA LAKE OPERATION**  
**FINANCIAL ASSURANCE COST ALLOCATION**  
**Radiological Survey and Monitoring**

<b>Gamma Scanning and Survey</b>	
Area	220 Acres
Initial Survey Spacing	10m Grid
Estimated Contractor Hours	540
\$/hour	\$200.00
Cost for Initial Survey	\$108,000.00
<b>Additional Environmental Monitoring</b>	
Estimated Contractor Hours	6
\$/week	\$9,100.00
Cost for Additional Environmental Monitoring	\$54,600.00
<b>Soil Sampling</b>	
Area	220 Acres
Number of Samples	580
Unit cost for gamma spec analysis for Ra-226, Th-230, U-238	\$90.00
Unit cost for alpha spec for Th-230	\$132.00
Analytical Costs	\$128,760.00
Shipping (\$15/sample)	\$8,700.00
Total Soil Sampling Costs	\$137,460.00
<b>Total Scanning and Survey</b>	<b>\$300,060.00</b>
<b>Dose Assessment</b>	
Estimated consultant hours	1000
Hourly Rate	\$275.00
	<b>\$275,000.00</b>