

# Rio Algom Mining LLC

June 26, 2018

Mr. James Webb  
U.S. Nuclear Regulatory Commission  
Mailstop T5-A10  
Washington DC 20555-0001

Subject: Rio Algom Mining LLC – Ambrosia Lake Facility  
License No. SUA-1473, Docket No. 40-8905  
2018 Surety Update – License Condition #22

Dear Mr. Webb:

Rio Algom Mining LLC (RAML) is pleased to submit the 2018 annual surety update for the above referenced source material license. The surety calculations are consistent with 10CFR40, Appendix A, Criteria 9 and 10.

During the past year, RAML performed routine health physics activities, groundwater monitoring and reporting. Although RAML performed initial Final Status Survey soil sampling and analysis in mid-2017, additional work is scheduled for this upcoming summer. Currently, RAML plans to consolidate and cover remaining windblown materials and cover areas with deep seated contamination (Alternative Release Criteria areas) in 2019.

The work that is now expected to be completed in 2019 has resulted in a slight decrease to the anticipated completion costs compared to last year's estimate. The total estimated amount remains substantially less than the current surety amount.

The indirect costs in this submittal were revised following the previously received NRC guidance. The 2018 estimate of indirect plus total contingency is \$2,279,116. The total estimated cost to complete the work by a third-party is approximately \$4,732,103. The enclosed tables summarize the revised 2018 surety calculations. RAML currently retains a financial surety instrument in the amount of \$16,000,000. RAML requests approval to retain the financial surety instrument that is currently in place.

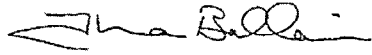
The attached tables provide supporting information to justify cost estimates (10CFR Part 40, Appendix A, Criterion 9 and Appendix C, NUREG-1620). A summary table is included as well as calculations for the Groundwater, Lined Pond Closure, Monitor Well Closure and Radiological Surveying and Monitoring. The Tailings Reclamation and Mill Decommissioning are complete.

The work and cost estimates represented in the tables comes from Scopes of Work submitted to RAML by consultants familiar with the site and the work that needs to be completed.

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If you have any questions on this matter or require additional information, please contact me at (209)736-4803 or by email at [Theresa.Ballaine@bhpbilliton.com](mailto:Theresa.Ballaine@bhpbilliton.com).

Respectfully submitted,  
**Rio Algom Mining LLC.**

A handwritten signature in black ink, appearing to read 'Theresa Ballaine', with a stylized flourish at the end.

Theresa Ballaine  
Site Manager

cc: NRC Document Control

Attachments

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

<b>Activity</b>	<b>Real Dollars as of June 1, 2018</b>
Tailings Reclamation	0
Groundwater	869,016
Mill Decommissioning	0
Lined Pond Closure	322,946
Monitoring Well Closure	146,071
Radiological Survey and Monitoring	1,114,955
<b>Activity Total</b>	<b>2,452,987</b>

<b>Indirects</b>	
Site Management (3.9% - RSMeans)	95,667
Overhead at 25%	637,164
Long Term Surveillance and Monitoring Fee (\$250K in 1978 \$ adjusted ) Using the May 2018 CPI-U Average - (((251.588-67.7)/67.7)+1) X \$250,000	929,055
<b>Total Estimated Indirect Costs</b>	<b>1,661,885</b>

**Total (Activity + Indirect)                      4,114,872**

**Contingency (15% of Total)                      617,231**

**Estimated Grand Total Financial Assurance 2018                      4,732,103**

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

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source	Date of Estimate	Real Dollars as of May 31, 2018
<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	0	1,004.32	0	Complete - April 2016	--	--
<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	0	4.41	0	Complete - June 2014	--	--
7.8" Rock Placement	0	11.59	0	Complete - June 2014	--	--
<u>Borrow Site Reclamation</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>			
Overburden Excavation and Fill	0	0.85	0	Complete - June 2014	--	--
<u>Pond 7 &amp; 8 Erosion and Diversion</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>			
Backfill	0	4.56	0	Complete - June 2014	--	--
Channel Excavation	0	13.44	0	Complete - June 2014	--	--
Channel Fill	0	3.32	0	Complete - June 2014	--	--
1" Rock Placement	0	5.28	0	Complete - June 2014	--	--
9.2" Rock Placement	0	10.27	0	Complete - June 2014	--	--
<b>Total</b>			<b><u>0.00</u></b>			<b><u>0.00</u></b>

**FINANCIAL ASSURANCE COST ALLOCATION**  
Groundwater

Activity	Task Estimate	Source	Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31 1, 2018
Monitor Well Replacement	0	Complete - January 2013	--				--
Monitor Well Closure <i>(see Monitor Well Closure tab)</i>	134,301	Consultant Estimate	10/12/2012	231.32	251.59	1.09	146,071
Stability Monitoring Reporting Program	300,000	Consultant Estimate	2/6/2017	243.60	251.59	1.03	309,834
Groundwater Monitoring within LTSM	400,000	Consultant Estimate	2/6/2017	243.60	251.59	1.03	413,111
<b>Total \$ 834,301.43</b>							<b>869,015.78</b>

*Notes*

*CPI - Consumer Price Index*

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

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source	Date of Estimate	Real Dollars as of May 31, 2018
<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	0	5.11	0	Complete - May 2015	--	--
Radon Barrier Placement	0	16.14	0	Complete - June 2014	--	--
1" Rock Placement	0	5.41	0	Complete - June 2014	--	--
7.8" Rock Placement	0	7.67	0	Complete - June 2014	--	--
<u>Building Demolition</u>			<u>\$</u>			
Asbestos Disposal	Lump Sum		0	Complete - March 2015	--	--
Haz Waste Disposal	Lump Sum		0	Complete - March 2015	--	--
Building Demolition	Lump Sum		0	Complete - March 2015	--	--
Substation Fencing (powerline relocation)	Lump Sum		0	Complete - June 2015	--	--
<b>Total</b>			<u>0</u>			<u>0</u>

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

Activity	Unit/Quantity	Unit Rate	Task Estimate	Source	Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31, 2018
<u>Pond 2 Cover Rock Purchase</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>						
Pond 2 - Cover Rock Purchase - 1"	0	19.92	0	Complete - April 2016	6/8/2015				-
Pond 2 - Cover Rock Purchase - 3.2"	0	20.42	0	Complete - April 2016	6/8/2015				-
Pond 2 - Cover Rock Purchase - 7.8"	0	22.38	0	Complete - April 2016	6/8/2015				-
Pond 2 - Cover Rock Purchase - 9.2"	0	22.38	0	Complete - April 2016	6/8/2015				-
<u>Pond 2 Cover Placement</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>						
Pond 2 - Cover Clay Placement	0	5.00	0	Complete - Dec 2015	2/26/2013				
Pond 2 - Regrade	0	2.76	0	Complete - May 2015	--				
Pond 2 - Cover Rock Placement - 1" (Includes Apron)	0	4.07	0	Complete - April 2016	2/26/2013				
Pond 2 - Cover Rock Placement - 3.2"	0	12.31	0	Complete - April 2016	2/26/2013				
Pond 2 - Apron/Channel Rock Placement - 7.8"	0	11.56	0	Complete - April 2016	2/26/2013				
Pond 2 - Apron/Channel Rock Placement - 9.2"	0	11.02	0	Complete - April 2016	2/26/2013				
<u>Section 4 Hot Spot Removal</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>						
Remaining Contaminated Soil	0	17.60	0	Complete - October 2014	--				-
Scanning and Survey (from Rad Survey & Monitor sheet)	Lump Sum		366,078	Complete - 2017	2/3/2010	227.66	251.59	1.11	-
Dose Assessment (from Rad Survey & Monitor sheet)	Lump Sum		67,930	Complete - 2017	2/3/2010	227.66	251.59	1.11	-
<u>Section 4 Final Contour</u>	<u>Acres</u>	<u>\$/Acre</u>	<u>\$</u>						
Regrade	300	256.00	76,800	Complete - 2017	2/26/2013	234.72	251.59	1.07	-
Reseed	300	1,004.32	301,296	Contractor Estimate	2/26/2013	234.72	251.59	1.07	322,946
<u>Borrow Site Reclamation</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>						
Overburden Excavation and Fill	0	0.85	0	Complete - April 2016	2/26/2013				
<u>Highway Overcrossing Removal</u>	<u>CY</u>	<u>\$/CY</u>	<u>\$</u>						
Bridge Removal and Demolition	Lump Sum		0	Complete - January 2015					-
<b>Total</b>			<b>812,104.00</b>						<b>322,945.69</b>

**Notes**

CPI - Consumer Price Index

**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	Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31, 2018
<b>Alluvial Wells:</b>		Linear Feet Abandoned in 2013					
5-03 R	56.25	Total Plug and Abandon Cost					
5-04	64.05	Cost per foot					
5-08 R	76.52	Future Linear Feet to Abandon					
5-73 R	35.69						
31-61	29.32	<b>Estimated Cost</b>	10/12/2012	231.32	251.59	1.09	<b><u>146,070.66</u></b>
31-65	41.47						
32-59	28.26	Nominal 6" wells					
<b>TRB Wells:</b>		Plugged and abandoned in accordance with					
19-77 TRB	288.22	New Mexico Environment Department Ground Water Quality					
31-02 TRB R	128.33	Bureau, Monitoring Well Construction and Abandonment					
31-67 TRB	97.52	Guidelines, 2011.					
36-01 TRB	58.41						
36-02 TRB	57.51	Work estimated based on:					
<b>TRA Wells:</b>		The reaming of the wells					
30-01 TRA	207.35	Grout backfill					
31-01 TRA R	213.58	Surface reclamation					
33-01 TRA	181.31	Reseeding					
<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							

**Notes**

CPI - Consumer Price Index

\*Estimate included in Line 8 of "Groundwater" Table



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

Gamma Scanning and Survey		Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31, 2018
Windblown Area	\$52,361	3/1/2016	238.13	251.59	1.06	\$55,320
ARC Areas	\$23,398	3/1/2016	238.13	251.59	1.06	\$24,720
Pipeline Data Analysis Preparation	\$11,600	4/3/2017	244.52	251.59	1.03	\$11,600
<b>Total Gamma Scanning and Survey</b>	<b>\$87,359</b>					<b>\$91,640</b>

Additional Soils Cleanup		Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31, 2018
Wind Blown Tailings (WBT) Areas	\$197,181	4/3/2017	244.52	251.59	1.03	\$197,181
Alternative Release Criteria (ARC) Areas	\$714,380	4/3/2017	244.52	251.59	1.03	\$714,380
Pond 3 Design - Additional Material	\$39,986	4/3/2017	244.52	251.59	1.03	\$39,986
<b>Total Gamma Scanning and Survey</b>	<b>\$951,547</b>					<b>\$951,547</b>

QA/QC and Reporting		Date of Estimate	Estimate Date CPI	May 31, 2018 CPI	Inflation	Real Dollars as of May 31, 2018
Prepare Quality Assurance Project Plan (QAPP)	\$7,530	3/1/2016	238.13	251.59	1.06	\$7,955
Produce Final Status Survey Report	\$48,400	3/1/2016	238.13	251.59	1.06	\$51,135
Respond to NRC RAIs	\$12,000	3/1/2016	238.13	251.59	1.06	\$12,678
<b>Total QA/QC &amp; Reporting</b>	<b>\$67,930</b>					<b>\$71,768</b>

<b>Total</b>	<b><u>\$1,106,836</u></b>	<b><u>\$1,114,955.36</u></b>
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*Notes*

*CPI - Consumer Price Index*

*\* Estimates from - Proposal to Implement Final Status Survey Plan at the Rio Algom Mining, LLC --ERG*

