



Energy, Mines and Resources  
Box 2703, Whitehorse, Yukon Y1A 2C6

February 17, 2016

Mr. Clynt Nauman  
President, Alexco Keno Hill Mining Corp  
Vancouver, British Columbia  
V7X 1M9

Dear Mr. Nauman,

**Re: Amendment to Keno Hill Silver District Mining Operations Project QML-0009,  
Flame and Moth Deposit**

In support of the development of the Keno Hill Silver District Mining Operations Project, Alexco Keno Hill Mining Corp filed an application to amend Quartz Mining License QML-0009 for the inclusion of the Flame and Moth ore body. This request was received electronically in my office on January 26<sup>th</sup>, 2015.

The application submitted included a series of operational and environmental plans which were forwarded to the First Nation of Nacho Nyäk Dunn (FNNND) and Yukon Government (YG) departments for review. The comments received from FNNND and YG were incorporated into a draft license which was sent to AKHM, FNNND and YG for review and comment on December 1<sup>st</sup>, 2015.

After review and consideration of all comments received on the application and draft license I have determined that an amendment to Quartz Mining License QML-0009 for the inclusion of the Flame and Moth deposit can be granted. I have attached one original license document for your records, and the second original will remain in our files.

In addition to the amendment application AKHM filed an update to the Reclamation and Closure Plan for both the current operations and the future development of the Flame and Moth deposit. This submission was a requirement of QML-0009 for the review of financial security every two years from the effective date of the License. SteveJan Consultants Inc. was retained by Mineral Resources to review the cost-estimates

associated with the current liabilities on site, and the liabilities two-years after commencement of Flame and Moth activities. Mineral Resources met with AKHM on several occasions to discuss the financial security requirements, including a site visit with SteveJan Consultants Inc. As the site is currently in a state of Temporary Closure, the financial security determinations made in the amended license pertain only to the current liabilities on site. Paragraph 11.1 of the License requires that \$6,304,508 be furnished within 60 days of the effective date; for greater clarity a table has been attached to this letter which shows the basis upon which security will be held. Financial security may be reassessed upon notification of the resumption of development and production activities, as required pursuant to Paragraph 10.9 of the amended license.

Should you have any questions or require clarification on terms and conditions contained in this license, do not hesitate to contact me at (867) 667-3126.

Sincerely,



Robert Holmes  
Director of Mineral Resources

cc. Chief Simon Mervyn, First Nation of Na-Cho Nyäk Dun  
John Fox, Assistant Deputy Minister, Oil, Gas and Mineral Resources  
Kai Woloshyn, Environmental Manager, Alexco Keno Hill Mining Corp.  
William Leary, Natural Resources Officer

encl: Quartz Mining License QML-0009  
Financial Security Determination

**QML-0009: Keno Hill Silver District Mining Operation**  
**Financial Security Determination - Current Liability**

Item No.	Mine Component	Security Determination July 2013	AKHM Estimate Based on RCP Rev 4	SICI Estimate Based on RCP Rev 4 Nov 16 2015	Yukon Government Final Security Determination
<b>Closure Implementation</b>					
<b>3</b>	<b>General and Administration</b>	-	\$ 626,000	\$ 724,000	\$ 692,500
3.1	Onsite Management	-	\$ 594,500	\$ 689,000	\$ 657,500
3.2	Transport Costs	-	\$ 31,500	\$ 35,000	\$ 35,000
<b>4</b>	<b>Waste Rock Dumps and Storage Facilities</b>	\$ 69,000	\$ 50,068	\$ 64,951	\$ 55,572
4.1	Bellekeno East Temporary P-AML WRSF	\$ 25,000	\$ 9,666	\$ 9,733	\$ 9,733
4.2	Bellekeno N-AML WRDA	-	-	-	-
4.3	Bellekeno Historic WRDA	-	\$ 9,582	\$ 15,167	\$ 10,031
4.4	Onek P-AML WRSF	\$ 8,000	\$ 2,751	\$ 5,303	\$ 3,770
4.5	Onek N-AML WRDA	-	-	-	-
4.6	Lucky Queen P-AML WRSF	-	-	-	-
4.7	Lucky Queen N-AML WRDA	-	-	-	-
4.8	Flame and Moth Temporary P-AML WRSF	-	-	-	-
4.9	Flame and Moth N-AML WRDA	-	-	-	-
4.10	Borrow Areas	\$ 17,000	\$ 7,627	\$ 10,465	\$ 7,754
4.11	Coarse Ore Pad	\$ 19,000	\$ 20,442	\$ 24,284	\$ 24,284
<b>5</b>	<b>Underground Mines</b>	\$ 657,000	\$ 408,653	\$ 472,682	\$ 452,395
5.1	Bellekeno East Portal and Underground	\$ 129,000	\$ 120,514	\$ 157,097	\$ 145,884
5.2	Bellekeno 625 Adit Area	\$ 296,000	\$ 99,740	\$ 119,952	\$ 116,796
5.3	Bellekeno 200 Level Vent Raise	\$ 33,000	\$ 35,952	\$ 37,493	\$ 35,952
5.4	Onek 990 Portal and Underground	-	-	-	-
5.5	Onek 990 Portal Site and Infrastructure	\$ 64,000	\$ 69,507	\$ 69,888	\$ 69,353
5.6	Onek 990 Vent Raise	-	-	-	-
5.7	Lucky Queen Underground	\$ 135,000	\$ 75,343	\$ 80,483	\$ 76,642
5.8	Lucky Queen Vent Raise	-	-	-	-
5.9	Flame and Moth Underground	-	\$ 7,597	\$ 7,768	\$ 7,768
5.10	Flame and Moth Vent Raise	-	-	-	-
<b>6</b>	<b>Water and Solutions Management</b>		\$ 377,997	\$ 432,284	\$ 372,302
6.1	Mill Runoff Collection Pond	\$ 42,000	\$ 32,910	\$ 47,273	\$ 41,666
6.2	Diversion Ditches	\$ 19,000	\$ 18,683	\$ 22,310	\$ 19,581
6.3	Bellekeno 625 WTP - Mine Pool Treatment Transition	\$ 836,000	\$ 305,614	\$ 347,652	\$ 296,562
6.4	Mill Pond - Bioreactor Transition		\$ 20,790	\$ 15,050	\$ 14,493
6.5	Flame and Moth Water Management		-	-	-
<b>7</b>	<b>Dry Stack Tailings Facility</b>	\$ 68,000	\$ 31,134	\$ 44,726	\$ 44,726
7.1	Current Footprint	\$ 68,000	\$ 31,134	\$ 44,726	\$ 44,726
<b>8</b>	<b>Mill and Infrastructure/ Facilities</b>	\$ 289,000	\$ 498,182	\$ 586,786	\$ 525,938
8.1	Mill and Ancillary Facilities	\$ 177,000	\$ 421,313	\$ 500,172	\$ 448,812
8.2	Mill Pad	\$ 80,000	\$ 50,119	\$ 59,864	\$ 50,376
8.3	Camp Downsize	\$ 32,000	\$ 26,750	\$ 26,750	\$ 26,750
<b>9</b>	<b>Haulage and Access Roads</b>	\$ 203,000	\$ 143,675	\$ 189,730	\$ 151,366
9.1	Bellekeno East Portal to Upper Laydown	\$ 17,000	\$ 10,923	\$ 16,294	\$ 11,586
9.2	Bellekeno 625 Access	-	\$ 9,634	\$ 10,715	\$ 10,259
9.3	Bellekeno East to BK 5	\$ 50,000	\$ 35,214	\$ 58,679	\$ 37,942
9.4	Keno City Bypass Road	\$ 27,000	\$ 25,971	\$ 30,328	\$ 25,440
9.5	Keno District Mill Access	\$ 82,000	\$ 16,199	\$ 20,480	\$ 18,040
9.6	Flame and Moth Haul Road	-	\$ -	-	-
9.7	Onek Haul Road	\$ 21,000	\$ 25,209	\$ 31,544	\$ 26,408
9.8	Lucky Queen Haul and Access Road	-	\$ 15,175	\$ 15,913	\$ 15,913
9.9	Other Roads and Trails	\$ 6,000	\$ 5,350	\$ 5,778	\$ 5,778
<b>10</b>	<b>Supporting Studies</b>	\$ 6,000	\$ 107,000	\$ 162,500	\$ 162,500
10.1	Kinetic Tailings and Waste Rock Materials Testing	-	\$ 23,000	\$ 27,500	\$ 27,500
10.2	Other Adaptive Management Plans Required	-	\$ 10,000	\$ 10,000	\$ 10,000
10.3	Contaminated Site Assessment Plan	\$ 6,000	\$ 9,000	\$ 10,000	\$ 10,000
10.4	Reclamation and Closure Research Plan	-	\$ 50,000	\$ 75,000	\$ 75,000
10.5	Passive Treatment Design	-	\$ 15,000	\$ 40,000	\$ 40,000
<b>12</b>	<b>Interim Care and Maintenance</b>	-	\$ 342,185	\$ 1,401,325	\$ 617,358
12.1	Personnel (per year)	-	\$ 95,832	\$ 258,291	\$ 117,636
12.2	Equipment (per year)	-	\$ 35,100	\$ 65,000	\$ 65,000
12.3	Tasks (per year)	-	\$ 187,853	\$ 336,972	\$ 90,643
12.4	Miscellaneous (per year)	-	\$ 23,400	\$ 40,400	\$ 35,400
	<b>Sub-total</b>	\$ 1,292,000	\$ 2,584,894	\$ 4,078,984	\$ 3,074,657
	Indirect Costs (%)		15%	15%	15%
	Indirect Costs		\$ 387,734	\$ 611,848	\$ 461,199
	Cost Inflation (0.2*2*(sub-total+indirect costs))		\$ 118,905	\$ 93,817	\$ 141,434

<b>Total Closure Implementation Costs</b>			<b>\$ 3,091,533</b>	<b>\$ 4,784,649</b>	<b>\$ 3,677,290</b>
<b>Post Closure Care, Maintenance and Monitoring Costs</b>					
<b>13</b>	<b>Mobilization and Demobilization</b>		<b>\$ 82,600</b>	<b>\$ 117,000</b>	<b>\$ 87,600</b>
13.1	Mobilize Equipment and Fuel		\$ 29,700	\$ 44,400	\$ 29,700
13.2	Mobilize Workers and Camp		\$ 12,600	\$ 17,600	\$ 17,600
13.3	Demobilize Equipment		\$ 27,700	\$ 42,400	\$ 27,700
13.4	Demobilize Workers and Camp		\$ 12,600	\$ 12,600	\$ 12,600
<b>11</b>	<b>Post Closure Care, Maintenance and Monitoring</b>	<b>\$ 1,225,000</b>	<b>\$ 1,201,240</b>	<b>\$ 2,194,212</b>	<b>\$ 1,721,340</b>
11.1	Onsite Management	\$ 219,000	\$ 224,000	\$ 290,000	\$ 290,000
11.2	Transport Costs		\$ 50,000	\$ 75,000	\$ 75,000
11.3	Water Treatment Costs		-	-	-
	Active Treatment		-	-	-
	Capital Costs		-	-	-
	Capital Replacement Costs		-	-	-
	Operating Costs		-	\$ 396,372	-
	Passive Treatment		-	-	-
	Capital Costs		\$ 65,000	\$ 110,000	\$ 110,000
	Operation and Maintenance Costs		\$ 55,000	\$ 130,000	\$ 130,000
11.4	Reclamation and Closure Research Plan (post-closure)	-	-	-	-
11.5	Monitoring and Reporting	\$ 1,006,000	\$ 807,240	\$ 1,192,840	\$ 1,116,340
	<b>Sub-total</b>		<b>\$ 1,283,840</b>	<b>\$ 2,309,212</b>	<b>\$ 1,808,940</b>
	Sub-total NPV (2.5% DROR)		\$ 1,087,678	\$ 1,735,211	\$ 1,514,085
	Indirect Costs (%)		15%	15%	15%
	Indirect Costs		\$ 163,152	\$ 260,282	\$ 227,113
	<b>Total NPV</b>		<b>\$ 1,250,830</b>	<b>\$ 1,995,492</b>	<b>\$ 1,741,198</b>
	<b>Total Financial Security Including Indirect Costs</b>		<b>\$ 4,342,363</b>	<b>\$ 6,780,141</b>	<b>\$ 5,418,488</b>
	Contingency Allowance on Monitoring and Reporting (%)		10%	10%	10%
	Contingency Ammount on Monitoring and Reporting		\$ 80,724	\$ 119,084	\$ 111,634
	Contingency Allowance on Remaining Items (%)		12.5%	25%	18%
	Contingency Amount		\$ 441,890	\$ 1,397,325	\$ 774,387
	<b>Total Financial Security (Plus Contingency)</b>	<b>\$ 4,172,850</b>	<b>\$ 4,864,977</b>	<b>\$ 8,296,550</b>	<b>\$ 6,304,508</b>
<b>Notes:</b>	<p>Yukon Government has accepted the unit cost rates presented in the SJCI report dated July 10 2015 and the level of effort presented in the AKHM costing supporting RCP rev.4</p> <p><b>5.2:</b> the additional line item to remove lab buildings and structures presented in the SJCI report has been accepted</p> <p><b>5.5:</b> the additional line items to back-up the french drain system to drain the adit and for miscellaneous tools and supplies presented in the SJCI report has been accepted</p> <p><b>6.1:</b> the additiona line item for backfill and countour presented in the SJCI report has been accepted</p> <p><b>6.3:</b> in 2015 AKHM installed the Bellekeno 625 passive treatment system, the line items for the installation and completion of design have been removed from this cost estimate.</p> <p><b>7.1:</b> The estimate provided by AKHM included credits for progressive reclamation undertaken on the current dry stack tailings facility. The SJCI estimate did not include credits for this progressive reclamation as the success has not yet been evaluated. Yukon Government has accepted the cost estimate prepared by SJCI, the effectiveness of the reclamation undertaken will need to be confirmed by a third-party consultant prior to reduction is security required.</p> <p><b>9:</b> the level of effort presented by SJCI and AKHM differ greatly for Haulage and Access Roads, in this instance the level of effort presented by SJCI has been accepted.</p> <p><b>11.5:</b> The monitoring and reporting requirements and level of effort presented by AKHM have been accepted with the unit rates presented in the SJCI report.</p> <p><b>12:</b> Yukon Government has included a two-year period for interim care and maintenance as presented in the SJCI report. This is consistent with other Yukon mine sites. The requirement for 6 months of active treatment has been removed from this cost estimate as the passive treatment system at Bellekeno 625 has already been installed by AKHM.</p> <p><b>13.2:</b> the additional line item to make the existing downsized camp operational presented in the SJCI report has been accepted</p> <p><b>NPV Calculations:</b> the NPV calculations were corrected to have no discount rate applied to year zero</p> <p><b>Contingency for Post Closure:</b> a 18% contingency was used for the post closure period which is representative of the level of design presented in RCP rev.4 and the contingency amount applied to similar mine sites in Yukon.</p>				