



QUARTZ MINING LICENSE QML- 0009

Pursuant to section 141(2) (a) of the Quartz Mining Act, Quartz Mining License QML-0009, issued February 17, 2016 is withdrawn and replaced with the following.

Mining License No: QML-0009

Issued to: Alexco Keno Hill Mining Corp.
1225-555 Burrard Street, Box 216
Vancouver, British Columbia
V7X 1M9

Project Name: Keno Hill Silver District Mining Operations Project
(Bellekeno, Lucky Queen, Onek, Flame and Moth and Bermingham)

Location: NTS 105M-13 & 105M-14;
Latitude: 63° 55'N, Longitude: 135° 29'W
Mayo Mining District

Effective Date: The date upon which the signature of the Director is affixed

Expiry Date: August 1, 2037

Scope of Authorization: Development and production associated with underground mines and a conventional flotation mill with a concentrate recovery process for the retrieval of silver, lead and zinc and other mineral by-products of the milling as set out in this License

Dated this 27 day of November, 2019

Director, Mineral Resources
Energy, Mines and Resources

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PART I - GENERAL PROVISIONS

1.0 Definitions

1.1 In this License,

“Act” means the Quartz Mining Act, S.Y. 2003, c.14;

“approved closure plan” means the *Reclamation and Closure Plan, Keno District Mine Operations, Keno Hill Silver District, Revision 5.1* dated April 2019, or a revision of this plan, revised as described in section 7.2 of this License and approved in accordance with section 6.0 of this License;

“approved plan” means a plan listed in Schedule C and for greater certainty includes any terms and conditions specified by the Director as set out in that Schedule;

“day” means a calendar day;

“Director” means the Director of the Mineral Resources Branch;

“dry stack tailings facility” means the area and related infrastructure that is used for storing the dewatered materials that are produced as a result of milling ore, including ground rock, unrecoverable ore, and water and chemicals used in milling the ore, as described in an approved plans listed in Schedule C related to dry stack tailings;

“engineer” means a professional engineer as defined in, and licensed under, the *Engineering Professions Act*, R.S.Y. 2002, c.75;

“environmental management system” means the coordinated approach to managing day to day operations and environmental emergencies established by the Licensee as described in approved plans addressing hazardous materials management, spill contingency planning, explosives management and emergency response planning as each is described in Schedule B and listed in Schedule C of this License;

“environmental protection plans” means the plans prepared by the Licensee to manage the environmental effects of the Undertaking as described in approved plans addressing waste management, environmental monitoring, wildlife protection, sediment and erosion control, heritage resource protection, spill contingency planning, hazardous materials management, explosives management, emergency response planning and adaptive management to respond to unexpected or unacceptable impacts to the environment, as each is described in Schedule B and listed in Schedule C of this License;

“Inspector” means an inspector designated pursuant to the Act;

“License” means Quartz Mining License QML-0009;

“Licensee” means the person to whom this Licence is issued;

“mill” means the building fitted with machinery for processing ore, including a crusher, mill ore stockpiles, concentrate load-out, tailings filter presses and load-out, and support infrastructure, as described in an approved plan listed in Schedule C related to mill operations;

“mine” includes

- (a) the Bellekeno, Lucky Queen, Onek, Flame and Moth, and Bermingham underground workings, portals to access each area, and related infrastructure, as each is described in an approved plan listed in Schedule C related to mine development and operations;
- (b) any waste rock and overburden storage facilities as described in an approved plan listed in Schedule C related to waste rock and overburden management;
- (c) any roads constructed at the site by the Licensee; and
- (d) all supporting infrastructure at the site including fuel tanks, repair and maintenance shops, explosive storage buildings, backfill and ventilation services, water storage ponds and associated dams, as each is described in an approved plan listed in Schedule C related to environmental protection or mine and mill operations.

“Minister” is the Minister of Energy, Mines and Resources;

“operations plans” means the plans prepared by the Licensee to manage and direct development and production of the Undertaking as described in approved plans listed in Schedule C related to mine development and operations, mill operations, waste rock and overburden management and tailings management;

“ore” means rock containing minerals that will be extracted in the mill;

“overburden” means soil or other unconsolidated material that lies above the rock surface;

“permanent closure” means the closure of the Undertaking as evidenced by the cessation of development and production as authorized by this License for any period of time longer than two (2) consecutive months that is not a temporary closure;

“Regulation” means the *Quartz Mining Land Use Regulation*, O.I.C. 2003/64;

“site” means the area where the Undertaking is taking place;

“site characterization” means a summary of the environmental conditions found at the site for areas that are, or may be, affected by the Undertaking;

“temporary closure” means the closure of the Undertaking as evidenced by the cessation of development and production authorized by this License for a period longer than two (2) consecutive months;

“underground workings” means the workings located below the surface that will be excavated to extract waste rock and ore, including all stopes, declines, adits, shafts, vents and related supports and infrastructure, as each is described in an approved plan listed in Schedule C related to mine development and operations;

“Undertaking” means all development, production, reclamation and closure authorized by this License related to the extraction of mineral resources from the mineral claims identified in Schedule A;

“waste rock” means rock excavated from underground workings that will not be processed in the mill; and

“waste rock storage facility” means an area where waste rock will be placed, either temporarily or permanently, as described in an approved plan listed in Schedule C related to waste rock and overburden management.

1.2 Any term not defined in this License that is defined in the Act has the same meaning as in the Act.

1.3 The following schedules form a part of this License:

- (a) Schedule A - Listed Mineral Claims
- (b) Schedule B - Plans to be Submitted for Approval as Approved Plans
- (c) Schedule C - Approved Plans and Authorized Activities
- (d) Schedule D - Annual Reporting Requirements

2.0 Coming into Effect

2.1 The authorizations, obligations and requirements set out in this License come into effect on the Effective Date.

3.0 Authorized Activities

3.1 The Licensee is authorized to carry out the activities set out in Part 1 of Schedule C

- (a) on the mineral claims listed in Schedule A; and
- (b) in accordance with the terms and conditions set out in this License.

4.0 Extensions of Time Limits

- 4.1 If the Licensee submits a written request to extend a time limit imposed by this License no less than five (5) days before the expiry of the time limit in question, the Director may extend the time limit. The new time limit will replace the time limit imposed in this Licence solely with respect to the written request.

5.0 Correspondence

- 5.1 Any written communication, notice or report required to be given by the Licensee pursuant to this License must be provided by personal delivery to the persons identified below, electronic mail or by registered mail to the addresses set out below.

To the Licensee: President, Alexco Keno Hill Mining Corp.
1225-555 Burrard Street, Box 216
Vancouver, British Columbia
V7X 1M9
bthrall@alexcoresource.com

Environmental Manager
#3-151 Industrial Road
Whitehorse, Yukon
Y1A 2V3
kwoloshyn@alexcoresource.com

To the Director: Director, Mineral Resources
Department of Energy, Mines and Resources
P.O. Box 2703
Whitehorse, Yukon
Y1A 2C6
Email: Todd.Powell@gov.yk.ca
Email CC: emr-qml@gov.yk.ca

- 5.2 Either the Licensee or the Director may change its address for service while this License is in effect by notifying the other in writing. All written communications, notices or reports will be considered to have been received by the Licensee or the Director, as the case may be, ten (10) days after the mailing thereof, or if personally delivered or sent by facsimile or by electronic mail, on the day of delivery.

PART II - DEVELOPMENT AND IMPLEMENTATION OF PLANS

6.0 Approval and Amendment of Plans

- 6.1 When the Licensee is required to submit a plan under this License, the Licensee must
- (a) submit the plan in writing to the Director;
 - (b) ensure that the plan meets the requirements for that type of plan as directed by the Director in writing; and
 - (c) not undertake any of the activities described in the plan until the plan is approved in writing by the Director and Schedule C amended accordingly.
- 6.2 If the Licensee wants to amend an approved plan, it must submit the proposed amendment to the Director as if the amendment was a plan under paragraph 6.1 of this License. If the Director approves the amendment, the Licensee agrees that the amendment and any terms and conditions set out by the Director in his/her approval will be considered to be an approved plan or a part of an existing approved plan, whichever is appropriate in the circumstance.
- 6.3 If the Director directs in writing, and with reasons, that an approved plan be amended, the Licensee must prepare the required amendment and submit it to the Director as if it was a plan referred to paragraph 6.1 of this License.
- 6.4 All plans submitted by the Licensee with respect to the design or construction of any engineered structures, works or installations related to the Undertaking must be under the stamp or seal of an engineer.

7.0 Required Plans

- 7.1 The Licensee must submit to the Director the plans listed in Schedule B.
- 7.2 The Licensee must submit to the Director an updated reclamation and closure plan on every second anniversary of the effective date

8.0 Implementation of Plans

- 8.1 Unless otherwise indicated by a term of this Licence or in writing by the Director, the Licensee must implement each approved plan as of the date each plan becomes an approved plan.
- 8.2 The Licensee must undertake reclamation at the site in accordance with the approved closure plan.

PART III - DEVELOPMENT AND MINE OPERATIONS

9.0 Development and Mine Operations

- 9.1 At least sixty (60) days prior to commencing any construction of an engineered structure, the Licensee must submit to the Director detailed designs of the structure stamped or sealed by an engineer.
- 9.2 The Licensee must follow the procedures for estimating acid rock drainage and metal leaching potential of waste rock, and segregating waste rock for storage on surface or use for construction purposes as set out in the approved plan in Schedule C entitled *Waste Rock Management Plan, Revision 6.2 (April 2019)* or any amendment to this plan once the amendment becomes an approved plan.
- 9.3 Waste rock from the Bellekeno, Lucky Queen, Onek and Bermingham mines with a calcium content no greater than 0.75% and a sulphur content measured via inductively coupled plasma sampling (ICP) of 0.25% or greater must be stored in approved waste rock storage facilities or used as backfill underground.
- 9.4 Waste rock from the Flame and Moth mine with a sulphur content measured via inductively coupled plasma sampling (ICP) of 1.5% or greater, or waste rock containing greater than or equal to 5000 ppm of either zinc or lead must be stored in approved waste rock storage facilities or used as backfill underground.
- 9.5 The Licensee shall identify and classify all material within 5m of any vein, or containing vein-associated stringers, and these materials must be stored in approved waste rock storage facilities or used as backfill underground.
- 9.6 Waste rock from the Bellekeno, Lucky Queen, Onek, Flame and Moth and Bermingham mines, used for construction purposes, must have a galena content less than 0.5%, a sphalerite content less than 0.75%, a pyrite content less than 2% and a paste pH greater than 6.0. Waste rock from the Bermingham mine must additionally have a carbonate neutralizing potential ratio of greater than 2 to be used for construction purposes.
- 9.7 Waste rock with a zinc content greater than 1100 mg/kg cannot be placed within thirty (30) meters of a waterbody.
- 9.8 The Licensee may only store waste rock meeting the criteria identified in paragraphs 9.3, 9.4 and 9.5 for a maximum of thirty (30) days in an approved temporary P-AML waste rock storage facility. Storage in excess of thirty (30) days may only be in a P-AML long – term storage facility or in the underground mine as backfill.

- 9.9 The Licensee must not store more than 125,000 tonnes of waste rock, at any one time, meeting the criteria in paragraphs 9.4, 9.5 and 9.6 in approved permanent waste rock storage facilities.
- 9.10 The Licensee must not remove more than 738,888 tonnes of waste rock, in total, from the underground workings of the Undertaking during the term of this License.
- 9.11 The Licensee must not process ore other than that obtained from the underground workings located at the site.
- 9.12 The Licensee must not mill at a rate exceeding 400 tonnes per day of ore based upon a 12 month average.
- 9.13 The Licensee must not extract more than 1,834,000 tonnes of ore from the mines over the term of this License.
- 9.14 The Licensee must not place more than or 907,000 tonnes of tailings in the dry stacked tailings facility during the term of this License.

PART IV - PERMANENT AND TEMPORARY CLOSURE

10.0 Permanent and Temporary Closure

- 10.1 The Licensee must provide written notice to the Director of its intention to permanently close the Undertaking at least sixty (60) days prior to the Licensee bringing about permanent closure and specify the intended date for permanent closure.
- 10.2 Immediately upon permanent closure, the Licensee must implement the approved closure plan as it relates to permanent closure.
- 10.3 The Licensee must provide written notice to the Director of its intention to temporarily close the Undertaking at least seven (7) days prior to the Licensee bringing about temporary closure.
- 10.4 Immediately upon temporary closure, the Licensee must implement the approved closure plan as it relates to temporary closure.
- 10.5 The Licensee acknowledges that the Director may, after giving the Licensee a reasonable opportunity to be heard on the matter, declare the Undertaking to be in temporary closure. Immediately upon receiving notice of the Director's declaration, the Licensee must implement the approved closure plan as it relates to temporary closure.

- 10.6 No production or development activities may be undertaken during temporary closure or permanent closure unless otherwise authorized in writing by the Director.
- 10.7 Within thirty (30) days of commencement of temporary closure, whether determined by notice under paragraph 10.3 or declaration under paragraph 10.5, the Licensee must provide to the Director:
- (a) written notice indicating for which engineered structures, works or installations at the site it has already provided as-built drawings to the Director; and
 - (b) copies of as-built drawings for those engineered structures, works or installations for which no such drawings have been previously provided to the Director.
- 10.8 The Licensee must provide written notification to the Director at least thirty (30) days in advance of its intention to end temporary closure and resume development and production and must receive the written authorization from the Director before development and production commences.
- 10.9 If temporary closure lasts longer than five continuous years from the date notice is given under paragraph 10.3 of this License or a declaration made under 10.5 of this License, permanent closure will be automatically determined to have occurred as of that date and the Licensee must implement the approved closure plan as it relates to permanent closure.

PART V - FINANCIAL SECURITY

11.0 Financial Security

- 11.1 The Licensee must furnish and maintain security with the Minister in the amount of \$7,871,492 within sixty (60) days of the effective date.
- 11.2 The Licensee acknowledges that the amount of security to be furnished and maintained will be reviewed and adjusted by the Minister no less than once every two years in accordance with the *Security Regulations*, OIC 2007/77.
- 11.3 If the Minister determines that additional security must be provided during the term of this License, the Licensee must furnish and maintain the additional amount of security.
- 11.4 If the Licensee fails to furnish and maintain the security referred to in paragraph 11.1 or 11.3 of this License, the Licensee's authority to carry on operations under this License is suspended until the security is furnished as required unless otherwise agreed to by the Director in writing.
- 11.5 The Licensee acknowledges that the written notice of the Minister referred to in paragraph 11.3 of this License will, upon issuance, amend paragraph 11.1 of this License

with respect to the amount of security and the requirement to furnish and maintain security in accordance with the payment schedule included in the notice will be considered a requirement of this License as of the date of the notice.

- 11.6 If security is furnished in the form of a surety bond or irrevocable letter of credit, and the surety or institution issuing the bond or letter of credit provide notice to the Minister of its intention to terminate its obligation, then the Licensee must furnish another form of security acceptable to the Minister in the full amount required by this License thirty (30) days before the date of termination or within ninety (90) days after the date of notice, whichever is shorter, or the Licensee will be in default of the requirement to furnish and maintain security as required by this License and Yukon government may immediately demand payment from the surety or institution.

PART VI - AUDITS AND REPORTING

12.0 Environmental Audit

- 12.1 The Licensee must carry out an environmental audit, to be undertaken by an independent contractor acceptable to the Director, no later than September 1st in every second (2nd) year from the effective date, to determine if the environmental protection plans and regulatory controls set out in this License are sufficient to ensure that the environmental quality at, in and around the mine is being protected and that the environmental management systems and controls are functioning as intended.
- 12.2 The audit must review the management, operations and practices of the Licensee that are intended to ensure environmental protection during production and development. The audit must evaluate:
- (a) compliance with the approved plans;
 - (b) the adequacy of the environmental protection plans to meet the objectives and intent of each plan;
 - (c) compliance with the internal environmental policies and procedures of the Licensee;
 - (d) the progress and success of reclamation and closure efforts completed to date;
 - (e) the reliability and integrity of information relating to environmental reporting and compliance; and
 - (f) any other requirements, including the scope and focus of the audit, as directed by the Director in writing.
- 12.3 Within sixty (60) days of an environmental audit being completed, the Licensee must provide the Director with a copy of the audit and a report detailing any remedial action to be undertaken by the Licensee in response to the audit.

13.0 Reporting and Inspections

- 13.1 The site characterization report must be submitted by the Licensee on or before March 31, 2020. The report must be updated every three (3) years from the effective date of this License, unless the Director directs, in writing, that the report must be updated on a more frequent basis. Descriptions of the environmental conditions at the site must be accompanied by supporting data and analysis demonstrating a suitable understanding of site-specific environmental conditions.
- 13.2 The Licensee must ensure that an inspection of the physical stability of all engineered structures, works and installations located at the site is conducted by an independent engineer by September 1 of each year of the term of this License, including the dry stack tailings facility, the waste rock and overburden storage facilities, the underground workings, ore stockpiles, mill site, camp sites, any diversion structures or dams and any other engineered facilities or works associated with the Undertaking.
- 13.3 Within ninety (90) days of the inspection referred to in paragraph 13.2, the Licensee must submit to the Director and the Inspector a written report prepared by the engineer that conducted the annual inspection documenting the results of the inspection, including a
- (a) summary of the stability, integrity and status of all of the inspected structures, works, and installations; and
 - (b) any recommendations for remedial actions made as a result of the investigations and evaluations.
- 13.4 The Licensee must take immediate steps to implement any of the recommendations for remedial action made as a result of the inspection referred to in paragraph 13.2 of this License and provide to the Director and the Inspector a written statement detailing how and when each of the recommendations for remedial action will be addressed.
- 13.5 The Licensee must
- (a) evaluate data gathered as a result of implementation of the monitoring and surveillance plan twice per year;
 - (b) develop and implement a program to take immediate steps to address any results from the monitoring and surveillance activities that indicate any change in environmental performance of the Undertaking or non-compliance with the Act, the Regulation, this License or any of the approved plans; and
 - (c) provide the Director with a statement detailing the program referred to in paragraph (b) and summarizing the action taken to address the change or non-compliance.
- 13.6 Within sixty (60) days of completing construction of any engineered facilities, the Licensee must submit a report to the Director containing:
- (a) as-built drawings of all structures, works and installations constructed; and

- (b) a summary and results of any quality assurance or quality control monitoring conducted by or for the Licensee in the course of constructing the structures, works and installations.

13.7 On or before March 31 of each year of the term of this License, the Licensee must submit an annual report, in writing, containing the information set out in Schedule D covering the period of January 1 to December 31 of the prior year.

Schedule A - Listed Mineral Claims

SCHEDULE A - LISTED MINERAL CLAIMS

Grant Number	Claim Name	Grant Number	Claim Name
59645	DAISY FRACTION	62367	DAWSON
55426	WILDCAT	55341	ROBIN
YC42578	K 30	59248	CAMEO
YA17395	LEM 1	55443	MONARCH
YC56120	K 93	59367	DE CHUCK
YC42580	K 32	12880	NAPOLEON
YA17397	LEM 3	56534	SEGLE
YC56121	K 94	YA77506	GALENA
55445	SOLOMAN	56530	MARIE ELENA
16097	DAVID	56404	FRANCES 8
YC42628	K 80	YC90545	BLUE FR. 2
YC42627	K 79	56405	LOUIS 1
YC56115	K 88	56581	OVERTIME 1
YC42629	K 81	59494	BOBBIE 10
59387	PUEBLO	12838	TUNDRA
55312	MONTY	56401	FRANCES 5
55546	HUSKY 10	83011	ADAM FRACTION
56402	FRANCES 6	55544	HUSKY 8
56533	BES	55319	ELI
16554	IKWOGGY	38819	ASTORIA
16585	LUCKY	59338	VALLEY
55599	FRANCES 3	16105	BETTY
13073	RAM	59316	BRISTOL
55271	ROSEMARY	38643	FLAME
59465	SUDDO 9	56403	FRANCES 7
14081	WHIPSAW	56582	OVERTIME 2
14327	EUREKA	16557	WESTON
38730	SILVER FR.	15207	TICK
55065	TIPTOP	55542	HUSKY 6
56534	SEGLE	55540	HUSKY 4
38642	MOTH	16375	VENTURE
16087	EXTENSION	15374	NANCY
55206	PEARL	55029	PREMIER
13094	OK FRACTION	16569	MONTE CARLO
56419	KIJO	56575	ACRE FRACTION
12965	LONE STAR	56443	APEX FR.
13032	GALENA FARM	16170	NOD FR.
55389	PORKY	59452	FALLS 16
59249	CAMARRILA	55600	FRANCES 4

Schedule A - Listed Mineral Claims

62248	KARIN	55120	CHANCE
59250	CAPSTAN	16561	ARIZONA
59463	SUDDO 7	14086	ORANGE
83012	CATHY FRACTION	14999	PACIFIC
55327	SAM	14085	FIG TREE
12909	ANTHONY	16556	KENO
62341	CAKE	38744	JEWEL
12931	SHEPHERD	55326	IRENE
62247	ERICA	55525	U.N.
12937	MATHOLE	55526	ROSE
12869	BLACK CAP	14816	GIBRALTAR
56505	TOM BOY	56503	V.O.
55330	JIMMIE	56591	EILEEN
55385	MARMOT	59027	SISTER
56515	YUKON	59385	INCA
82289	LITE FRACTION	59468	DUNCAN 1
12923	UNCLE SAM	59469	DUNCAN 2
14002	UPTON	59482	EDITH-CAVELL 5
12876	FISHER	59483	EDITH-CAVELL 6
55420	CROESUS	59485	EDITH-CAVELL 8
Y 69403	GALAXY	14169	ETTA
62235	NM	14087	HUXLEY
80178	ALBERTA L	14893	SPENCER
55022	RANDO	14883	DARWIN
13222	LAKOTA	14998	ATLANTIC
YC01993	BLUE	59491	BOBBIE 7
12915	SIWASH	59493	BOBBIE 9
56406	LOUIS 2	59670	EDITH-CAVELL 9
10269	HAPPY	61209	HOBBO 3
13452	RICO	62131	METEOR
14089	ARCTIC	80360	OBOE
14168	MASTIFF	YA39498	Bulldozer 1
14222	LILY	YC42575	K27
14227	READY CASH	YC42576	K28
14228	Dolly Varden	YC42577	K29
14466	AJAX	YC42579	K31
14898	RIO	YC42600	K52
14989	RUBY	YC42602	K54
14990	NAETHING	YC90503	BULLDOZER F 2
15249	BRIDGETTE	YC90541	Nifty Fourteen
15250	BOYLE	14880	JUMBO

Schedule A - Listed Mineral Claims

15264	KIM	15305	GRUB STAKE
15303	SWISS	14846	DENVER
16012	NORTH STAR	55048	BEE
14084	BIRMINGHAM	16026	EXTENSION

SCHEDULE B - PLANS TO BE SUBMITTED FOR APPROVAL AS APPROVED PLANS

Construction, Development and Operations Plans

Emergency Response and Health and Safety Plan – A plan that provides detailed procedures and responsibilities for response to emergency situations that may be encountered.

Mill Development and Operations Plan – A plan that details the construction, operation and monitoring of the mill.

Mine Development and Operations Plan – A plan that details the activities for the construction, operation, maintenance and monitoring of the mine.

Road Development and Operations Plan - A plan that details the construction and operations of roads developed for the purposes of the Undertaking

Tailings Management Plan – A plan that describes the activities for the design, construction and operation of facilities for the transport and storage of tailings, including operations, maintenance and surveillance protocols for these facilities.

Waste Rock Management Plan - A plan that provides a description of the activities for the segregation of the various overburden and waste rock streams, including how the categories of waste rock will be managed throughout the mine life, details of the construction, operation and monitoring of the various waste rock and overburden storage facilities.

Environmental Protection and Environmental Management Plans

Adaptive Management Plan - A plan that provides detailed descriptions of procedures and actions to identify, understand and respond to changing conditions that may cause negative environmental effects on the environment. The plan should demonstrate that actions can be taken prior to causing unacceptable effects.

Environmental Monitoring, Surveillance and Reporting Plan - A plan that describes methods and techniques for collecting and reporting monitoring information regarding conditions of engineered structures and environmental conditions at the Undertaking, as well as quantitative thresholds which trigger the implementation of adaptive management strategies.

Explosives Management Plan - A plan, based on best management practices, that describes the methods and techniques used to reduce and control ammonia losses to the environment.

Schedule B - Plans to be Submitted for Approval as Approved Plans

Hazardous Materials Management Plan – A plan provides details of the storage and handling of various hazardous chemicals utilized in the Undertaking.

Sediment and Erosion Control Plan - A plan that describes methods and techniques for protecting undisturbed lands, minimizing footprints and reducing erosion of soils due to land disturbances and weathering by wind and water.

Spill Contingency Plan – A plan that describes the measures designed to minimize the potential impact to the environment following a fuel or chemical spill.

Waste Management Plan – A plan that describes the mitigations and methods used to manage solid and liquid wastes and special wastes to ensure protection of the environment and human health.

Wildlife Protection Plan – A plan that describes the mitigation measures or practices pertaining to wildlife attractants, vehicle use, habitat management, wildlife harassment and wildlife health.

Socio-Economic Mitigation Plans

Dust Abatement and Monitoring Plan – A plan that describes measures to identify and address any potential air quality effects that may occur as a result of the Undertaking.

Heritage Resource Protection Plan – A plan that describes measures to identify and protect historic sites, historic objects, and works of archaeological, paleontological, pre-historic, historic, scientific or aesthetic value.

Noise Management Plan – A plan that describes methods to reduce and control noise levels for the mill facility and the transportation of ore to the mill along the Lightning Creek Bypass road, the Duncan Creek road, Keno City Bypass road and the Christal Lake road.

Traffic Management Plan – A plan that describes the mitigation measures or practices pertaining to the control of vehicle access, whether private or public vehicles, on the various roads included in the Undertaking.

SCHEDULE C - APPROVED PLANS AND AUTHORIZED ACTIVITIES

PART 1: AUTHORIZED ACTIVITIES

The Licensee is authorized to carry out the following activities set out below as directed by the approved plans set out in Part 2. For greater certainty, if there is no approved plan that addresses the activity to be carried out, the activity cannot be carried out until a plan is approved for the conduct of the activity.

1.0 Access

The Licensee is authorized to access the Undertaking via the Silver Trail Highway and Wernecke Road and to construct, maintain and utilize the haul road between the BK East Portal and BK 625 Adit, the Bellekeno Haul Road, the Lightning Creek Bypass Road, the Christal Lake Road, the Keno City Access Road, the Flame and Moth Access Road, Bermingham Access Road, the Calumet Road, and a section of the Duncan Creek Road (between the Mill and Bermingham Mine).

2.0 Camp

The Licensee is authorized to operate a camp for up to 200 people consisting of bunkhouse accommodations, mine dry, cooking facilities, water and sewage facilities, heating and recreational facilities.

3.0 Industrial Complex

The Licensee is authorized to operate and maintain an industrial complex in support of the Undertaking, including an explosives storage area and fuel containment facility.

4.0 Mill and Ancillary Facilities

The Licensee is authorized to operate and maintain a mill consisting of equipment for crushing and grinding ore, silver concentrate flotation, concentrate thickening, tailings filtration, temporary tailings storage, load out of concentrate, ore stockpiles and ancillary infrastructure.

5.0 Underground Mining Operations

The Licensee is authorized to carry out production at Bellekeno, Lucky Queen, Onek, Flame and Moth, and Bermingham using conventional underground mining methods, including rotary drills, blasting and ancillary services.

6.0 Waste Rock and Overburden Management

Subject to Part III of this License, the Licensee is authorized to deposit waste from the Undertaking in the underground workings, on surface as general fill and in temporary P-AML waste rock storage facilities (Bellekeno, Onek, Lucky Queen, Flame and Moth, and Bermingham).

7.0 Tailings Management

The Licensee is authorized to deposit tailings from the Bellekeno, Lucky Queen, Onek, Flame and Moth, and Bermingham mines in the Phase I and Phase II (expansion) Dry Stack Tailings Facility.

PART 2: APPROVED PLANS

The following plans are approved, subject to the listed conditions.

1.0 Construction, Development and Operations Plans

1.1 Emergency Response

- **“Keno Hill Silver District Operations - Management Health and Safety Program”** dated January 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) 90 days prior to mining, crushing, or milling the Licensee must update the Emergency Response Plan to include a description of the crushing circuit including all buildings, ventilation systems, and dust collection systems.

1.2 Mill Operations

- **“Mill Development and Operations Plan, Keno Hill Silver District Mining Operations - District Mill, Revision 4”** dated November 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Before milling commences the Licensee must
 - i. install a noise reducing structure over the mill crusher; and
 - ii. install a dust collection system, compliant with Part 8, section 8.26, of the *Occupational Health and Safety Regulations*, OIC 2006/178.

1.3 Mine Development and Operations

- **“Construction Site Plan, Revision 1, Bellekeno Project, Yukon”** dated November 2009 and prepared by Access Consulting Group, as amended by Bellekeno Project Construction Site Plan: Alternate Aggregate Sources” dated February 8, 2010, set out in a correspondence from Access Consulting Group (Ethan Allen) to the Director
- **“Mine Development and Operations Plan, Quartz Mining License QML-0009, Bellekeno Project”** dated December 2009 and prepared by Access Consulting Group
- **“Mine Development and Operations Plan, Lucky Queen and Onek Mines - Keno Hill Silver District, Revision 1”** dated January 2013 and prepared by Alexco Keno Hill Mining Corporation
- **“Mine Development and Operations Plan, Flame and Moth - Keno Hill Silver District, Revision 2”** dated April 2018 and prepared by Alexco Keno Hill Mining Corporation

- **“Mine Development and Operations Plan, Bermingham – Keno Hill Silver District, Revision 0”** dated August 2019 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Borrow sources must be developed in accordance with the Construction Site Plan, except as clarified below:
 - i. “Table 4-3 Revision 1 – Site Borrow Areas”, contained in the February 8, 2010 letter, replaces “Table 4-3 Site Borrow Areas” in the Construction Site Plan;
 - ii. Borrow Area #8 (Silver Trail Highway Gravel Pit #1) is not approved for use and is excluded from this approval; and
 - iii. Borrow Area #10 (Silver Trail Highway Gravel Pit #2) must provide visual buffers utilizing contoured stripping and/or setbacks to reduce visual impact from the Silver Trail.
- (b) A ground conditions and support audit, for each mine area, must be carried out by an independent engineer on an annual basis and the results of this audit shall be reported in the inspection required in paragraph 13.2 of this License.
- (c) An engineering design for backfill properties, for each mine area, must be submitted prior to implementation;
- (d) A quality control program for cemented backfill material, for each mine area, must be provided prior to implementation;
- (e) All escapeways must be in place prior to the commencement of production mining. Provide a detailed plan of the vent raise escapeway.

1.4 Road Management Plan

- **“Water License Application & Mining Land Use Approval Amendment Request, Bellekeno Advanced Underground Exploration & Development, Keno Hill Silver District, Yukon, January 2008”** dated January 2008 and prepared by Access Consulting Group
- **“Construction Site Plan, Revision 1, Bellekeno Project, Yukon”** dated November 2009 and prepared by Access Consulting Group
- **“Lightning Creek Bypass Road Construction and Operation Plan, QML-0009, April 2010”** dated April 2010 and prepared by Access Consulting Group
- **“Road Construction Plan - Keno City Bypass Road, Keno Hill Silver District Mining Operations, QML-0009”** dated September 2012 and prepared by Access Consulting Group
- **“Road Construction Plan - Keno Hill Silver District Mining Operations, QML-0009, Revision 4”** dated September 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Provide road gradients and detailed designs (inclusive of runaway lanes) for the entirety of the proposed Bermingham Haul Road prior to construction.

1.5 Tailings Management Plan

- **“Revision 2010-1 Operation, Maintenance and Surveillance Manual, Dry Stack Tailings Facility, Keno Hill District Mill, YT”** dated September 2010 and prepared by EBA Engineering Consultants Ltd.
- **“Dry Stack Tailings Facility Construction and Operation Plan, Part III DSTF Dust Modeling, QML-0009, September 2010, Bellekeno Project”** dated September 2010 and prepared by Access Consulting Group
- **“Dry Stack Tailings Construction and Operation Plan, Revision 4”** dated November 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Only filtered tailings may be placed in the dry stack tailings facility;
- (b) The Licensee must monitor geochemical characteristics of the tailings during operation, and develop final design of the closure cover to mitigate any potential geochemical concerns that may be indicated;
- (c) Accumulated snow must be removed from the facility prior to lift placements;
- (d) Slopes in the final configuration must be reclaimed progressively to prevent dusting and erosion of exposed tailings slopes;
- (e) Prior to the placement of Bermingham tailings in the dry stack tailings facility (“DSTF”), an updated Tailings Characterization Plan that includes kinetic testing results for tailings produced from Bermingham ore must be submitted for review and approval
- (f) The Operations, Maintenance and Surveillance Manual must be updated to include current conditions and must be provided in the 2019 Annual Report. In addition to this one time requirement, the Manual must be updated, and the updated information be provided in the subsequent annual report, when the following conditions are met:
 - i. as vacant positions are filled and on an ongoing basis to reflect current status; and
 - ii. as the result of practical operational experience or where any additional monitoring or operational modifications are recommended in the annual physical inspection report required pursuant to section 13.0 of the License;
- (g) Prior to construction of the DSTF expansion, the Licensee must conduct a subsurface monitoring program including monitoring the installation of stability monitoring equipment, ground temperature cables and groundwater monitoring wells to build adequate baseline data prior to construction;
- (h) Prior to construction of the DSTF expansion, the Licensee must submit a detailed Tailings Management Plan consistent with the Yukon Government guidance document entitled *Plan Requirement Guidance for Quartz Mining Projects* dated August 2013. This plan must include the following.

- i. additional subsurface investigations in the footprint of the proposed DSTF expansion area. The subsurface investigations must provide representative sampling from across the footprint of the proposed DSTF expansion to support the conclusions of the DSTF design and stability analysis;
 - ii. the results of the recommendations made by EBA in Attachment C of Revision 3; and
 - iii. an operations, maintenance and surveillance manual including subsurface monitoring.
- (i) The Licensee must install a geosynthetic liner beneath the expanded DSTF to contain and capture any seepage that may occur from the facility in future and allow for treatment prior to release to the receiving environment.

1.6 Waste Rock and Overburden Management

- “Typical Waste Containment Facility Design, Keno Hill Silver District, YT” dated July 2008 and prepared by EBA
- “Review of Potential site for Typical Waste Rock Containment Facility, Bellekeno East Adit” dated July 30, 2009 and prepared by EBA
- “Construction Site Plan, Revision 1, Bellekeno Project, Yukon” dated November 2009 and prepared by Access Consulting Group.
- “Waste Rock Management Plan, Revision 6.2” dated April 2019 and prepared by Alexco Environmental Group

Subject to the following conditions:

- (a) Prior to construction of waste rock disposal areas, a waste rock management plan with Issued for construction designs of proposed facilities must be submitted to the Director for review and approval as required in paragraph 6.2 of this License;

2.0 Environmental Protection and Environmental Management Plans

2.1 Adaptive Management Plan

- “Adaptive Management Plan, Keno Hill Silver District Mining Operations” dated July 2018 and prepared by Alexco Environmental Group

2.2 Environmental Monitoring, Surveillance and Reporting Plan

- “Monitoring, Surveillance and Reporting Plan - Keno Hill Silver District Mining Operations” dated July 2018 and prepared by Alexco Keno Hill Mining Corporation

2.3 Explosives Management Plan

- “Explosives Management Plan, Keno Hill Silver District Mining Operations” dated February 2019 and prepared by Alexco Keno Hill Mining Corporation

2.4 Hazardous Materials Management

- **“Hazardous Materials Management Plan, Keno Hill Silver District Mining Operations”** dated July 2018 and prepared by Alexco Keno Hill Mining Corporation

2.5 Spill Contingency

- **“Spill Contingency Plan, Keno Hill Silver District”** dated July 2018 and prepared by Alexco Keno Hill Mining Corporation

2.6 Waste Management Plan

- **“Waste Management Plan, Keno Hill Silver District Mining Operations”** dated July 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) a copy of any permit issued pursuant to the Environment Act, R.S.Y. 2002, c.76, must be sent to the Director and the Waste Management Plan must be updated to ensure consistency with these permits;
- (b) the installation of a new industrial incinerator must be completed prior to the commencement of production; and
- (c) placement of sludge on the DSTF is not permitted.

2.7 Wildlife Protection

- **“Wildlife Protection Plan, Keno Hill Silver District Mining Operations”** dated July 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Best efforts must be made to ensure that land disturbance in previously undisturbed areas is timed to avoid the core migratory bird breeding period of May 1st to August 31st. In the event that land disturbance must occur during that time, the nests of birds listed under the Migratory Birds Convention Act, 1994, S.C. 1994, c.22 must not be disturbed or destroyed.

3.0 Socio-Economic Mitigation Plans

3.1 Dust Abatement and Monitoring

- **“Dust Abatement and Monitoring Plan, Keno Hill Silver District Mining Operations”** dated August 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) The Licensee must engage residents of Keno City in the development of an updated Dust Abatement and Monitoring Plan prior to starting operations; and

- (b) Prior to the start of production and milling operations, the Licensee shall establish a formal complaint mechanism and publicly accessible information registry for dust and air quality related incidences. The complaint mechanism shall include steps that the Licensee will take to record, investigate, if warranted rectify, and report back to the community and regulators.

3.2 Heritage Resource Protection

- **“Heritage Resources Protection Plan, Keno Hill District Operations”** dated March 2019 and prepared by Alexco Keno Hill Mining Corporation

3.3 Noise Monitoring and Management

- **“Noise Monitoring and Management Plan, Keno Hill Silver District Mining Operations”** dated August 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) The Licensee must engage residents of Keno City in the development of an updated Noise Monitoring and Management Plan prior to starting operations, and provide an engagement summary in the 2020 Annual Report to the Director, following commencement of activities.

3.4 Traffic Management

- **“Traffic Management Plan, Keno Hill Silver District Mining Operations”** dated August 2018 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Prior to the start of production and milling operations, the Licensee shall establish a formal complaint mechanism and publicly accessible information registry for traffic related incidences. The complaint mechanism shall include steps that the Licensee will take to record, investigate, if warranted rectify, and report back to the community and regulators.

4.0 Reclamation and Closure

4.1 Reclamation and Closure

- **“Reclamation and Closure Plan, Keno District Mine Operations, Keno Hill Silver District, Revision 5.1”** dated April 2019 and prepared by Alexco Keno Hill Mining Corporation

Subject to the following conditions:

- (a) Provide updated kinetic results and demonstrate how the results have been considered and addressed.

Schedule C - Approved Plans and Authorized Activities

- (b) Provide updated data on the performances of the Silver King in-situ treatment, including:
 - i. performance data up to 2019;
 - ii. a discussion about why metal concentrations appear to have increased and how the Licensee proposes to operate in-situ treatment, monitor treatment performances, identify triggers for if/when carbon addition is required and keep metal concentrations below EQS in a closure context;
 - iii. details regarding how often carbon addition would be required, what would trigger carbon addition need to be addressed - should carbon addition be required on a regular basis; and
 - iv. a discussion on how the updated data potentially impacts the design and planning of in situ treatment for Bellekeno and Bermingham.
- (c) Construction, installation, implementation and costing details for a contingency water treatment for the adit drainage if mine pool treatment does not achieve objectives; and
- (d) Provide updated results on the DSTF cover performance in the Annual Report, including data up to 2019. In addition specifically addressing the following questions:
 - v. were seeps collected from the toe of the DSTF and was the volume of the seeps monitored?
 - vi. can the Licensee provide an estimate of the reduction in precipitation infiltration from the area of the DSTF that was covered?

SCHEDULE D – ANNUAL REPORTING REQUIREMENTS

The Annual Report must include:

Site Activities

- (a) a summary of construction activities associated with the Undertaking;
- (b) a summary of mining activities;
- (c) a map showing the status of all structures, works, and installations associated with the Undertaking;
- (d) the total amount of ore and waste removed from the underground workings for the year and for the life of the Undertaking;
- (e) the total amount and the average head grade of ore milled;
- (f) the total amount of concentrate produced and removed from the Undertaking;
- (g) the total amount of tailings deposited in the dry stack tailings facilities;
- (h) the amount of pyritic and other tailings disposed of underground and the location of its deposition;
- (i) the total amount of waste rock removed from the mine and the amount deposited into each deposit location;
- (j) the total amount of waste rock stored in each waste rock storage facility;
- (k) a summary of the previous and projected use of mine site and access roads, including maintenance work conducted;
- (l) details respecting any action taken as a result of the recommendations made by the engineer in relation to the inspection referred to in section 13.2 of QML -0009;
- (m) details respecting the results of the ground conditions and support audit, for each mine area;
- (n) a summary of any updates to estimates of ore reserves and the life of the mine, including reserve category, tonnage and grade;
- (o) the total amount and the average grade of each ore stockpiled; and
- (p) the remaining reserve life of the mine.

Environmental Monitoring

- (a) a summary of the programs undertaken for environmental monitoring and surveillance as outlined in the *Environmental Monitoring, Surveillance and Reporting Plan* and the *Wildlife Protection Plan*, including an analysis of these data and any action taken or adaptive management strategies implemented to monitor or address any changes in environmental performance;
- (b) a summary of humidity cell or other geochemical tests undertaken on waste rock;
- (c) a summary of the results of the waste rock quality assurance/quality control monitoring for the past year;
- (d) a summary of results on the DSTF cover performance: specifically addressing seeps collected from the toe of the DSTF, volume of the seeps monitored, and an estimate of the reduction in precipitation infiltration from the area of the DSTF that was covered

- (e) a summary of invasive plants that have been identified on site and measures taken to control or remove invasive plants;
- (f) a summary of all spills and accidents that occurred at the site and measures taken respond to any spills or accidents, whether reported to the Yukon spills line or another Yukon government authority;
- (g) a summary of the level of traffic, access control issues, wildlife incidents and other; accidents, and any upgrade or maintenance work planned for the upcoming year; and
- (h) a summary of all dust, noise, and traffic related incidences as reported by the public and residents of Keno City; and
- (i) a summary of any site improvements undertaken to address sediment and erosion control.

Physical Monitoring

- (a) a summary of any underground stability incidents;
- (b) a summary of data collected to date as part of the Physical Monitoring Program;
- (c) details of results, including data collected, for the physical monitoring program;

Reclamation and Closure

- (a) any temporary closure or permanent closure that has occurred during the year;
- (b) a summary of activities related to care and maintenance of the Undertaking, including any temporary closure activities if applicable;
- (c) a summary of progressive and ongoing reclamation activities;
- (d) a summary of proposed development and production and reclamation activities for the coming year; and
- (e) a summary of reclamation research and results.

Socio-economic Monitoring

- (a) a summary of action taken by the Licensee with respect to implementation of the "Keno City Socio-Economic Mitigation Plan" described in YESAB 2013-0161 Decision Document condition 33; and
- (b) a summary of action taken by the Licensee with respect to engagement with Keno City residents in developing the *Noise Monitoring and Mitigation Plan*.