



ALEXCO

WASTE MANAGEMENT PLAN

QML-0009

November 2009

BELLEKENO PROJECT



ACCESS
CONSULTING GROUP

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Attachments

Attachment 1 Letter From ERDC to AKHMC Granting Permission to Mine and Perform
Activities and Improvements Collateral to Mining

1.0 INTRODUCTION

Throughout the course of the Bellekeno Project various forms of waste will be produced and require management to ensure proper disposal under the applicable legislation. As such, the following preliminary Waste Management Plan has been prepared to outline the facilities and measures that will be used to manage the waste streams. Because the Bellekeno mine will operate within the context of existing and ongoing care and maintenance and closure planning for the whole Keno Hill Silver District, existing waste management facilities and permits are already in place. It is anticipated that amendments to existing permits will be required to accommodate wastes generated by the Bellekeno Project. As the project proceeds and permits are obtained or amended that regulate the management and disposal of waste, this plan will be revised accordingly with approvals appended.

2.0 WASTE MANAGEMENT FACILITIES

2.1 Existing Waste Management Facilities and Permits

A number of existing waste management facilities exist on site and are used in support of care and maintenance and closure activities, and will be amended in order to accommodate waste resulting from the Bellekeno Project (see Figure 1). Permission to mine and “perform activities and construct improvements collateral to mining” which includes use of waste management facilities has been granted by ERDC to Alexco Keno Hill Mining Corp as set out in the Application for Quartz Mining Licence QML-0009. The letter granting this permission is attached as Attachment 1.

A Commercial Dump Permit No. 81-012 is currently held from YG Environment in accordance with the Environment Act Solid Waste Regulations as well as the Public Health and Safety Act. This permit will continue to be used in support of the Bellekeno Mine operation.

Alexco currently holds two (2) sewage disposal system permits at Elsa issued by YG Environmental Health Services: one septic system permit for the Flat Creek Camp (Permit #3012) and a septic system for the four houses (Permit #3131) constructed in 2008. Should the planned camp expansion at Flat Creek Camp require expansion of the existing septic

system, plans for this expansion will be submitted as part of Phase III of the construction site plan.

Special Waste Permit No. 41-199 is currently held from YG Environment in accordance with the Environment Act Special Waste Regulations for burning waste oil, generating and/or storing waste batteries, waste oil, waste solvents, and other special wastes.

2.2 Valley Tailings Landfill

The Valley Tailings landfill will be used to accommodate solid wastes generated during construction, operation, and closure activities of the Bellekeno Mine Project. An amendment to existing commercial dump permit No. 81-012 for a will be submitted to Yukon Environment as per the *Solid Waste Regulations*. The location for this waste management area is north of the Elsa near the Valley Tailings Area (see Figure 1).

2.3 Incinerator

Existing Air Emission Permit No. 4201-60-026 will be used in accordance with Yukon Environment Act, *Air Emissions Regulations*, in order incinerate solid waste from the Bellekeno Project. This facility is located at the Valley Tailings Landfill area (see Figure 1).

The incinerator consists of a burning barrel fabricated from old fuel tanks. These barrels have been successfully utilized in various community dump applications throughout the Yukon as it is a highly efficient method of clean burning waste and mitigating fugitive litter and ash.

Included within the barrels are spark arrestors and ventilation holes. These ventilation holes will create the draft necessary to draw air through the bottom and pull it through to the top of four separate screened stacks. The unit is completely self-contained, requiring no external source of energy to operate.

Onsite managers/operators will initiate and monitor the burning of Elsa camp waste on a regular basis.

Refuse originating as camp and office waste, plus warehouse scrap will contain some organic wastes. Garbage and debris destined for disposal will be collected routinely and prior to incineration stored in wildlife proof containers / fenced short term storage areas in a manner which does not attract wildlife to the mine or mill site. Solid waste will be frequently and completely incinerated (once installed) in a manner which minimizes odours and eliminates the attraction of bears and other wildlife to the mine site. Combustible waste containing a fossil fuel by-product shall be drained prior to incineration and that material will be recycled where possible.

The burn barrel will be located in a remote area approximately 11 km from the nearest community of Keno City. The burning vessel will be located 2 kilometers north of Elsa camp in a remote location, which will assist in mitigating the impact of emissions on the immediate camp site. The barrel will be set back from the forest edge in an existing clearing, and the barrel will be monitored for proper functioning during use.

Ash from the barrel will be shoveled by heavy machinery (bobcat or backhoe) on an as needed basis. The ash will be transported to and deposited in a man-made trench located adjacent to the burn barrel location. The movement and deposition of ash waste is dealt with in the solid waste permit.

2.4 Land Treatment Facility

A multi-use Land Treatment Facility (LTF) for is currently under consideration and will be located in the vicinity of Elsa for the potential collection, storage and treatment of soil and/or liquid contaminated with petroleum hydrocarbons. In the event of a petroleum spill, the Contaminated Site Regulations will be followed and an LTF will be permitted based on analytical results.

2.5 Sewage Disposal

Three separate locations (Elsa/Flat Creek, Flame and Moth mill site, and Bellekeno mine site) will require sewage services in order to accommodate Bellekeno mine development and operations (details below). Sewage disposal facilities currently include both permanent and portable facilities.

All disposal facilities will comply with the Public Health and Safety Act, Sewage Disposal Systems Regulations. In particular, septic tanks, sewage holding tanks or contained privies will be located at least 15 m from the ordinary high water mark (OHWM) of nearby water bodies; while the soil absorption system (or pit privies) will be located not less than 30 m from the high water level of nearby water bodies. Soil absorption systems will not be located where soil conditions are unsuitable for absorption of effluent.

Two conventional septic tank/leach field systems will accept all sanitary wastewater. One system will be located adjacent to the camp and serve the camp, administrative offices, and process plant. The second system will be located at the truck shop area to serve the truck shop and the mine.

2.5.1 Flat Creek Camp and Elsa

Alexco currently holds two (2) sewage disposal system permits at Elsa issued by YG Environmental Health Services: one septic system permit for the Flat Creek Camp (Permit #3012) and a septic system for the four houses in Elsa (Permit #3131) constructed in 2008. Should the planned camp expansion at Flat Creek Camp require expansion of the existing septic system, plans for this expansion will be submitted as part of Phase III of the construction site plan.

2.5.2 Flame and Moth Mill Site

Holding tank and trucked to Flat Creek Camp.

2.5.3 Bellekeno Mine

Holding tank and trucked to Flat Creek Camp.

2.6 Sediment Control & Events Ponds

During construction the accumulated sediment within the sediment control & events ponds will be collected as required and buried below ground away from drainage flow paths and watercourses.

3.0 WASTE STREAMS & SEGREGATION

The type of waste that will be managed at the site includes:

- Solid Waste (non-hazardous)
 - Putrescible (i.e. camp refuse)
 - Non-putrescible (i.e. burnable or non-burnable)
- Special wastes (i.e. waste oil, batteries – only to be segregated and stored temporarily)

3.1 Solid Waste (non-hazardous)

Kitchen / organic waste will be stored in clear plastic bags inside a 10'x10' bear proof steel clad shed (previously an explosives magazine) at the camp site with a 1" thick steel door with heavy clasp for security. The bin will be emptied daily and taken to the incinerator for immediate burning.

Waste that is non-burnable, non-hazardous, and non-recyclable will either be temporarily stored in steel bins at the commercial dump area (e.g. construction wastes) or in the steel clad bin at the camp site (e.g. washed out containers for non-hazardous contents). This waste, along with incinerator ash will be buried within the dump. Material will periodically be covered with a layer of soil to prevent the loss of waste through wind action.

Used tires requiring disposal and have a rim size of 24.5 inches or greater will be buried within the commercial dump. Used tires requiring disposal with a rim size of 24.5 inches or less will be dealt with in accordance with the Yukon Used Tire Management Program and transported off site to an approved facility.

3.2 Special Waste

Any special wastes, as defined by the *Special Waste Regulations* (batteries, used oil, antifreeze, solvents), will be collected and stored in specially marked containers and then shipped to an appropriate treatment or disposal facility. Wildlife-proof rig bins will be used to provide segregated storage for solid waste that cannot be burned and special wastes in compliance with *Special Waste Regulations*.

Alexco currently holds Special Waste Permit No. 41-199 for this project and will comply with the Yukon *Special Waste Regulations* and track wastes through the use of Transportation of Dangerous Goods Waste Manifests. An amendment to this permit in order to accommodate special wastes generated from the Bellekeno mine will be applied for. Special Waste Permit No. 41-199 includes authorization to use a waste oil burner at the site (in Elsa) as per the *Special Waste Regulations*. Waste oil will be burned and used as a source of heat.

A concrete floor will be provided throughout the truck maintenance area and will be sloped towards a dry sump, which will collect any wash solutions and petroleum products that result from the maintenance activities. Oil-absorbent products will also be used on the shop floors.

Any accumulated sump water will be separated and oils pumped to the waste oil tank or empty drums. All oily wastes from oil changes, including the sump separation products and absorbent, will be hauled off the site for disposal or recycling in an environmentally acceptable manner or disposed of in the waste oil burner. An oil and water separator will be used in the truck shop to capture oil, which will then be taken offsite by the oil supplier for disposal or disposed of in the waste oil burner.

The lubrication bay of the maintenance shop will have a vacuum evacuation system for waste oil. Hose reels will feed from the lubrication storage area and will dispense antifreeze, grease and various grades of oil to the lubrication bay.

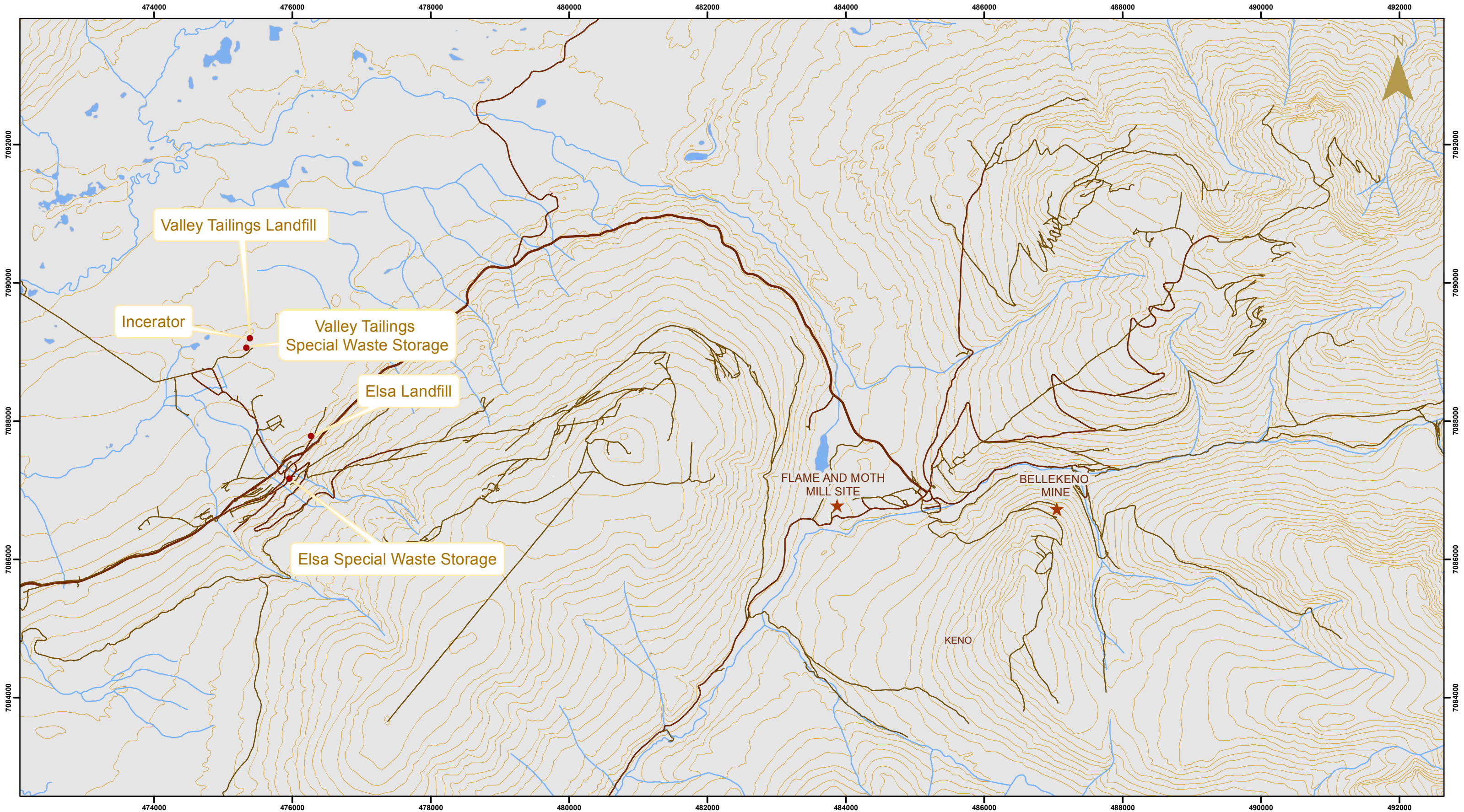
3.3 Waste Management Matrix

Both controlled / hazardous and non-controlled / non-hazardous materials will be dispensed of accordingly. Signage will be in place to assist in proper segregation of wastes. The general projected types of waste expected to be disposed of at the commercial dump for the project are presented in Table 1 while Figure 1 follows and shows the general location for the commercial dump.

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WASTE MANAGEMENT PLAN –QML-0009

Table 1 Waste Management Matrix

Type of Waste Generated	On Site Storage Method	On Site Storage Location	Disposal Method
Non-Controlled Materials			
Incinerator Ash	Open top drums with sealable lids.	N/A	Incinerator ash will be removed from the incinerator with machinery and hauled directly into the dump.
Scrap Steel	N/A	Waste management area	Segregated and recycled or buried.
Wood - Burnable	N/A	Waste management area	Incinerated.
Kitchen /Camp Waste	Clear plastic bags inside 10'x10' steel clad with a 1" thick steel door with heavy clasp for security.	Within camp	Bin shall be emptied daily and taken to the incinerator for immediate burning.
Construction Waste - drywall, glass, insulation, electrical wire, etc. (non hazardous)	Steel bins.	Waste management area	Bins shall have their contents emptied into the dump and buried.
All tires with a rim size of 24.5 inches or greater.	These tires will be taken directly to the ash disposal area.	N/A	These tires will be buried.
All tires with a rim size of 24.5 inches or less.	These tires will be placed in a segregated area within the waste management area.	Shall be stored in a segregated area determined by managers. Location will be clearly labeled.	These tires will be transported off site to a regulated and permitted dump with tire segregation on an as required basis.
Plastic containers - non hazardous contents	Containers will be inside placed 10'x10' steel clad with a 1" thick steel door with heavy clasp for security. Containers shall be washed out completely and not contain any residual.	Within camp	Bin shall be emptied as required and taken to the incinerator for immediate burning.
Metal containers - non hazardous contents	Containers will be inside placed 10'x10' steel clad with a 1" thick steel door with heavy clasp for security. Containers shall be washed out completely and not contain any residual.	Within camp	Bin shall be emptied as required and taken to the dump to have the contents buried.
Glass containers - non hazardous contents	Containers will be inside placed 10'x10' steel clad with a 1" thick steel door with heavy clasp for security. Containers shall be washed out completely and not contain any residual.	Within camp	Bin shall be emptied as required and taken to the dump to have the contents buried.
Controlled Materials			
Batteries	Lined wooden box	Segregated area at waste management area. Clearly labeled.	Batteries will be placed in an upright position within a 4'x4' box. When the 4'x4' box is full, another will be built and the full box shall be shipped off site to the local Waste Management facility in Whitehorse. Appropriate measures will be taken to ensure batteries remain upright during transport (i.e. waste construction wood will be used as filler to take up extra space).
Used Oil	Used oil will be placed in a 300 gallon container located in a bermed area.	Enclosed tanker.	When the container is full, the oil will either be transported to a waste oil burner onsite or management will contact a local supplier to transport oil to a recycling facility offsite.
Fuel Filters	Open top drums with sealable lids.	Waste management area - segregated special waste storage area.	Residual oil and fuel will be drained from filters into waste oil/fuel storage containers.
Antifreeze	Closed top drums with both bungs.	Segregated lined area at waste management area. Clearly labeled. Bungs sealed tight.	When enough drums are gathered up they shall be palletized in similar groups of 4 and banded together for shipment to the local Waste Management facility in Whitehorse.
Solvents	Closed top drums with both bungs.	Segregated lined area at waste management area. Clearly labeled. Bungs sealed tight.	When enough drums are gathered up they shall be palletized in similar groups of 4 and banded together for shipment to the local Waste Management facility in Whitehorse.



<p>1:50,000 when plotted on 11x17 inch paper</p> 	<p>● Waste Facility Location</p>	<p style="font-size: small;">This map is for illustrative purposes only. This is not a legal document. National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral data compiled by Natural Resources Canada. Reproduced under license from © Her Majesty the Queen in Right of Canada, Department of Natural Resources Canada. All rights reserved. Quartz claim boundaries are current as of November 21, 2008. Data source: http://geomatricsyukon.ca. Ownership is current as of November 26. Claim status report obtained from the Mining Recorder (Mayo) Projection: UTM Zone 8 NAD83 NTS Sheet 105M/13 and 105M/14</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p>ALEXCO BELLEKENO PROJECT Waste Management Plan Figure 1</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Drawn By: MD</td> <td style="width: 33%;">Checked by: EA</td> <td style="width: 33%;">July 2009</td> </tr> </table> <p style="font-size: x-small;">D:\Project\AllProjects\Minto\gis\mxd\Permitting\MLU\WasteManagementPlan.mxd</p>	Drawn By: MD	Checked by: EA	July 2009
Drawn By: MD	Checked by: EA	July 2009					

4.0 ATMOSPHERIC EMISSIONS

Alexco will implement the following measures with respect to the control of atmospheric emissions:

Fugitive Dust	<ul style="list-style-type: none">• Minimize activities that generate large quantities of fugitive dust;• Use dust suppression measures to control any generated fugitive dust to the maximum extent possible such as watering main haul roads (ensuring water quality standards identified for release into receiving waters are met);• Progressively reseed disturbed areas that may contribute to fugitive dust.
Combustion	<ul style="list-style-type: none">• Ensure proper maintenance of vehicles, pumps, compressors, generators, and other internal combustion engines to minimize emissions of polluting gases;• Use low sulphur fuels including diesel fuel with a sulphur content <15 ppm and propane with negligible sulphur content and where appropriate, waste heat recovery and energy efficient techniques will be employed to decrease diesel use.

5.0 SLUDGE MANAGEMENT

There are currently five water treatment locations authorized under WUL QZ06-074 (the site wide Care & Maintenance Water Licence) including: Bellekeno 625, Galkeno 900, Galkeno 300, Silver King, and the Valley Tailings.

The water treatment systems use basic metal hydroxide precipitation technology. In general, lime solution is added to the adit waters and a zinc hydroxide precipitate (“sludge”) is formed and settles to the bottom of lined ponds.

A comprehensive site-wide sludge management plan under WUL QZ06-074 has been developed, and is periodically updated in order to guide the overall management of the sludge that is produced as part of the treatment systems.

Treatment using similar technology will also be installed at the Bellekeno Mill site collection pond in order to treat any potentially metal rich mill process overflow, and runoff from the DSTF and mill site.

Sludge produce from the Bellekeno mine is currently disposed of in accordance with the district wide Sludge Management Plan under QZ06-074 at the Valley Tailings Area. Once Alexco nominates the Bellekeno mine and mill as a production unit, sludge resulting from both the Bellekeno mine and mill treatment facilities will be disposed of in a new location in order to keep liability separate from sludge produced at other district wide treatment plants, which will remain as Canada's liability

Sludge resulting from the Bellekeno mine and milling operations will be periodically disposed of in compacted lifts within the dry stack tailings facility (DSTF). Prior to placement, sludge will be dewatered using the thickener and pressure filters in order to reduce moisture content to approximately 15%. It is estimated that approximately 65 -100 m³/ yr. of sludge will be produced from the Bellekeno Mine. Less than 50 m³/ yr of sludge is expected from the mill water treatment facility. These additional volumes have been accounted for in the DSTF development and operations plan. The addition of dewatered sludge to the DSTF will not compromise geotechnical or geochemical stability.

The DSTF Operations, Maintenance and Surveillance Manual submitted as part of the DSTF Construction and Operation Plan will include more detailed protocol for sludge deposition measures and monitoring protocols. This sludge management plan for Bellekeno mine related sludge will also be included in subsequent versions of the Sludge Management Plan under QZ06-074.



ERDC

November 16, 2009

Department of Energy, Mines & Resources
Government of Yukon
P.O. Box 2703
Whitehorse, YT Y1A 2C3

Attention: Greg Komaromi, Assistant Deputy Minister

Dear Sirs:

Re: Quartz Mining Licence QML-0009

Elsa Reclamation and Development Company Ltd. (ERDC) and Alexco Keno Hill Mining Corp (AKHM) (previously named Alexco Resource Canada Corp.) are each wholly-owned subsidiaries of Alexco Resource Corp., and ERDC has granted to AKHM the right to either mine all minerals found in those Claims that are the subject of Quartz Mining Licence QML-0009 or perform activities and construct improvements collateral to mining, all as set out in the Application for Quartz Mining Licence QML-0009.

It is agreed by ERDC and AKHM that once a Production Unit (as defined in the February 7, 2006 Subsidiary Agreement among ERDC, Alexco, Canada and YG, all as defined therein) is nominated pursuant to the terms of such Subsidiary Agreement, then certain of the rights detailed in the first paragraph above may encompass a more restricted area consistent with the area of such designated Production Unit.

AKHM continues to hold those rights granted to it by ERDC (see correspondence dated June 10, 2008 previously submitted) to conduct exploration on all of ERDC's claims.

Sincerely,

ELSA RECLAMATION & DEVELOPMENT COMPANY LTD.

Per: Clynton R. Nauman, President & CEO

The foregoing is hereby acknowledged and agreed by
the undersigned this 16th day of November, 2009

ALEXCO KENO HILL MINING CORP.

Per: Clynton R. Nauman, President & CEO

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