

# **Lupin Mines Incorporated**

A wholly owned indirect subsidiary of Elgin Mining Inc.

## **Lupin Mine Site**

Nunavut, Canada

## **Care and Maintenance Plan**

(Care and Maintenance)

March 2012

Lupin Mines Incorporated  
Elgin Mining Inc.  
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Vancouver, BC V6C 2T7

## Document Control

Revision No	Date	Details	Author	Approver
1.0	20/03/12	<p>Reformatted to Lupin Mines standard.</p> <p>Revised and updated to reflect new ownership and contact information.</p> <p>Updated discussion of site occupation to reflect current site activities.</p> <p>Updated discussion of solid waste management to reflect current practices.</p> <p>Added reference to <i>Wildlife Management Plan</i>.</p> <p>Added reference to <i>Stormwater Management Plan</i> and updated plan to include liquid waste and water management</p> <p>Added section and reference to <i>Fuel Containment Management Strategy</i></p> <p>Address comments from EC (2009) and AANDC (2010)</p>	S. Hamm	P. Downey

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## **1 Introduction**

Lupin Mines Incorporated (LMI), a wholly owned indirect subsidiary of Elgin Mining Inc. (Elgin), has prepared this Care and Maintenance Plan (the Plan) with respect to the requirements within Water License Number 2AM-LUP0914, Part I, Item 2.

An annual review of the Plan takes place and revisions are submitted as necessary with the annual report. The current Type A water licence 2AM-LUP0914 (Water Licence) for the Lupin Gold Mine (Lupin or the Lupin Mine) is valid until March 31, 2014 and has been kept in good standing.

### **1.1 Project and Company Information**

Elgin is a Canadian based company focused on the exploration and development of the Lupin Mine and Ulu Gold Project, both located in Nunavut, Canada.

Elgin purchased LMI, which owns the Lupin Mine, from MMG Resources Ltd. in July 2011. The Lupin site was an operational underground gold mine from 1982 to 2005 with temporary suspensions of activities between Jan 1998 and April 2000, and again between Aug 2003 and March 2004. The mine resumed production in March 2004 until 2005. Since 2005, the site has remained in care and maintenance.

An exploration program is currently underway at the Lupin site under water licence 2BE-LEP1217. All camp infrastructure required for the exploration program currently exists at the Lupin Mine site, which has previously been screened by the Nunavut Impact Review Board under file 99WR053 and approved by the Nunavut Water Board under water license 2AM-LUP0914.

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Effective date: 30 March 2012

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Sharleen Hamm	Manager, Environment
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Additional copies of this Plan are available from General Administration.

This Plan will be posted in key locations at the site, and all employees and contractors will be made aware of its contents.

## **1.2 Site Location**

The Lupin Mine is located in Kitikmeot Region, Nunavut, 400 km north of Yellowknife, Northwest Territories and 285 km southeast of Kugluktuk. The geographic center of that property is 65° 45'29" N / 113° 13'10W. It is on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle.

## **1.3 Environmental Policy**

LMI looks to our employees, contractors and managers to adopt and grow a culture of environmental excellence. Together we achieve this by implementing key components of our Environmental Policy:

- Promoting environmental stewardship in all tasks. Nothing is too important that it cannot be done in a clean and responsible manner. We strive towards maintaining a zero-incident work place.
- Recognizing that we have a shared responsibility as stewards of the environment in which we operate. We will not walk away from a non-compliant act.
- Identifying, managing and mitigating environmental, business and social risks in an open, honest and transparent manner.
- Planning our work so it is done in the cleanest possible manner and executing work according to plan.
- Continually improving environmental and operational performance by setting and reviewing achievable targets.
- Providing appropriate and necessary resources in the form of training, personnel and capital, including that required for closure planning and reclamation.
- Managing our materials and waste streams, maintaining a high degree of emergency response preparedness and minimizing our operational footprint to maintain environmental protection at all stages of project development.
- Seeking to understand, learn from and mitigate the root causes of environmental incidents and near misses when they do occur.
- Employing systems and technology to achieve compliance, increase efficiency and promote industry best practices in development, operations and environmental stewardship.

## **1.4 Purpose and Scope**

This Plan is designed to outline management and monitoring measures on site while the Lupin Mine is under care and maintenance.

The objectives of the Plan are to:

- outline waste management measures;
- outline fuel storage and management;
- outline water management measures; and
- provide details on tailings management and monitoring.

## **2 Occupation of the Site**

The site is currently occupied in support of exploration activities occurring under water licence 2BE-LEP1217, and site maintenance activities. Occupancy during exploration activities is approximately 10-20 people including drill crews, and exploration, environmental and camp management personnel. Activities on site are expected to increase in the summer months to support an expanded exploration program and facility works.

Individuals will be accommodated on site in the guesthouse, the 1300 wing of the accommodation complex, and an additional wing of the accommodation complex, depending on the number of personnel on site. The domestic water supply is Contwoyto Lake. Sewage and grey water are conveyed to the Sewage Lakes system.

### **2.1 General Responsibilities**

Responsibilities of site personnel include:

- Support for and execution of exploration program;
- Control fugitive dust;
- Manage snow and storm water in accordance with best management practices (BMPs);
- Maintain secondary containment dry in petroleum storage areas;
- Prevent the release of petroleum products;
- Implement *Lupin Mine Spill Contingency Plan*, as needed;
- Manage all wastes according to *Lupin Mine Waste Management Plan*;
- Inspect water and domestic sewage pipelines;
- Operate, maintain and monitor tailings and sewage facilities in accordance with this Plan;

- Maintain environmental licenses, permits and authorizations;
- Conduct monitoring programs; and
- Regularly review and update contingency, mitigation and management plans.

### **3 Solid Waste Management**

While under care and maintenance, LMI shall conduct appropriate solid waste identification, segregation and disposal, as outlined in the *Lupin Mine Waste Management Plan* (Appendix 4). All wastes generated by its activities will be managed by appropriately trained personnel. LMI has obtained a waste generator number (NUG 100047) and waste shipment off site will be manifested as required. Appropriate and approved waste receivers will be utilized.

### **4 Tailings Containment Area**

#### **4.1 Dam Integrity**

A weekly visual inspection of the dams' physical conditions and seepage will be carried out during snow-free periods when the TCA is accessible, and when safely accessible during winter months. Inspection records will be maintained on site, for review upon the request of an inspector. During these inspections, thermistor readings will be taken for the assessment of dam performance. The dams will be inspected by an independent geotechnical consultant on an annual basis.

#### **4.2 Water Management**

There is a substantial amount of water present within the TCA, contained in Cell 4, Cell 5, Pond 1 and Pond 2. All of this water will be periodically transferred downstream to maintain a 1 m freeboard at all times. The water in Cell 4 is transferred to Pond 1 via gated valve, from here the water is transferred from Pond 1 to Pond 2 by way of siphon. Cell 5 is directly upstream of Pond 1 and water is transferred directly to Pond 2 via siphon. Pond 2 is the largest pond; here, water is treated with lime and eventually discharged to the environment.

At the start of the season a water level survey of all ponds and cells will be conducted. A base point elevation will be marked on all ponds and cells containing water to allow onsite staff to maintain the appropriate freeboard within the TCA. Water levels will be monitored as part of the weekly dam inspections.

##### **4.2.1 Discharge from Pond 2**

Review of historical documentation associated with the site has shown that the accumulation of runoff and seepage in the ponds of the TCA builds up over a period of two to three years to the point where a discharge to the environment is required to lower the pond levels. LMI plans to have a release every three years, or as current conditions on site require. LMI is currently reviewing water treatment

strategies to ensure safe, effective and efficient water treatment is achieved prior to release to the environment. In mid-June, appropriate personnel will mobilise to the site to prepare for the discharge, which will commence on or about 15 July. The discharge time period is expected to be approximately 3 months duration, on average. During this time, a dedicated staff compliment of two to three individuals will be on site.

The *Lupin Mine TCA Discharge Procedure* and *Lupin Mine Discharge Sampling Procedure* are appended (Appendix 2 and Appendix 3).

#### **4.3 Exposed Dry Tailings**

After a thorough review of historical documents received from the previous owner of the site it has been determined that there is approximately 206,852 m<sup>2</sup> of tailings within the TCA that have yet to be covered. It is understood that Cell 5 contains 119,524 m<sup>2</sup> of exposed tailings and Cell 3 contains 87,328 m<sup>2</sup> of exposed tailings. All of the tailings contained in Cell 5 are currently covered with water therefore eliminating any potential for dust contamination.

To contain the tailings solids that are not covered with water year-round, it is proposed to complete the tailings cover in these areas with the appropriate layer of sand and gravel, consistent with previous tailings cover works. Cover material will be obtained from the Fingers Lake esker quarry. The actual thickness of the cover over the currently exposed tailings will vary depending on the current surface grades and trafficability of the tailings; however, the amount of cover will be sufficient to isolate the tailings solids from the wind and limit evaporation of water from the tailings mass. This will preclude wind-borne transport of the tailings solids to the adjacent areas outside of the TCA.

### **5 Wildlife Management**

A *Lupin Mine Wildlife Management Plan* has been developed, outlining measures designed to mitigate impacts to wildlife which may arise from air traffic, waste management and ongoing site activities (Appendix 4).

### **6 Liquid Waste and Water Management**

The *Lupin Mine Liquid Waste and Stormwater Management Plan* has been developed to outline water and liquid waste management practices currently in place at Lupin (Appendix 5).

Drinking water is obtained from Contwoyto Lake at LUP-01. It is transported by truck and stored in a storage tank adjacent to the 1300 wing.

Liquid waste resulting from camp accommodations and kitchen facilities (dishwater and sanitary waste) is stored in a sewage tanks and then hauled to the Upper Sewage Lake for disposal daily. If camp capacity increases in the summer months, options for installation of a small diameter sewage line to convey greywater and sewage directly to the sewage lakes will be investigated. Water accumulating in sewage lakes is tested prior to discharge to the environment to ensure it is in compliance with part E(8) of the Water Licence. If compliant, water is discharged from LUP-14 to the environment.

Stormwater results from precipitation events on the ground surface and building roofs on site. Overland flow quality and quantity are managed through implementation of a series of BMPs to minimize effects to the environment that may result from stormwater run-off. Safe material handling and storage procedures minimize introduction of potential contaminants to the site environment, which may in turn, be mobilized by stormwater. BMPs including erosion control measures, site grading and ditching are in place to minimize impacts from the movement of surface water over surficial materials.

Water accumulating in secondary containment of fuel storage facilities is tested prior to discharge to the environment to ensure it is in compliance with part E(9) of the Water Licence. Water that is not in compliance is pumped to a storage tank where it is held until it can be treated and subsequently released to the environment at LUP-27. Snow that is contaminated with hydrocarbons is collected and melted. The hydrocarbon portion is skimmed of the water using sorbent towels. The water is then tested and either discharged or stored prior to treatment and release to the environment.

## **7 Fuel Management**

*A Lupin Mine Fuel Containment Management Strategy* was developed early in 2012, following a site inventory of the current fuel containment system at Lupin. This strategy can be found in Appendix 6. This document lists current systems, their status, and outlines a plan to bring systems into compliance.

## Appendices

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## **Appendix 2: Lupin Mine TCA Discharge Procedure**

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