Lupin Mines Incorporated

A wholly owned subsidiary of Mandalay Resources Corp.

Lupin Mine

Nunavut, Canada

Landfarm Management Plan

December 2014

Lupin Mines Incorporated

#1204 – 700 West Pender Street,

Vancouver, BC V6C 1G8

Executive Summary English

This Landfarm Management Plan has been prepared by Lupin Mines Incorporated (LMI), a wholly owned subsidiary of Mandalay Resources Corp. for the Lupin Gold Mine to support the renewal of Water Licence 2AM-LUP0914 (Licence). The Project site is located in the Kitikmeot Region, Nunavut, 400 km north of Yellowknife, Northwest Territories and 285 km southeast of Kugluktuk. The site is on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle. The site has been in a state of care and maintenance since 2006. LMI continues to evaluate the feasibility of returning to operations.

The Landfarm Management Plan has been developed to provide the operating guidance for the landfarm, which will be put in place on an existing pad to treat select hydrocarbon impacted soils. The Landfarm Management Plan details the landfarm layout, materials that are suitable for landfarming, safety considerations, operating procedures and sampling approach.

Executive Summary Inuktitut

Awaiting translation – to be provided as soon as possible

Executive Summary Inuinnaqtun

Awaiting translation – to be provided as soon as possible

Table of Contents

List of Tables

List of Figures

1. Introduction

Lupin Mines Incorporated (LMI), a wholly owned subsidiary of Mandalay Resources Corp., has prepared this Landfarm Management Plan for the Lupin Mine (Mine) to provide operational guidance for a landfarm which forms part of the on-going progressive reclamation at the minesite.

The Mine is located in the Kitikmeot Region, Nunavut, 400 km north of Yellowknife, Northwest Territories and 285 km southeast of Kugluktuk. The airport serving this Site is at 65° 46'00" N and 111° 14'41" W. The Site is on the western shore of Contwoyto Lake (Appendix A).

Landfarming is an *ex situ* contaminated soil bioremediation technique that involves excavating and spreading impacted soil material either in beds consisting of a thin uniform layer, or in windrows. Remediation occurs by manipulating the soil conditions to stimulate microbial activity. Nutrients and water may be applied to the soil to stimulate microbial activity. Landfarms are an effective method to remediate petroleum hydrocarbon contaminated soils, particularly in remote regions of Canada due to the simplicity of the operational requirements.

The landfarm is required to reduce the volume of contaminated soil at the Mine prior to final closure and reclamation. The landfarm will be built on an existing concrete pad. Once hydrocarbon concentrations in the soil have been remediated to an acceptable level, it will be removed and re-used as clean fill material.

2. Background

Elgin Mining purchased LMI, from MMG Resources Ltd. in July 2011. Lupin was in operation from 1982 to 2005 with temporary suspensions of activities between January 1998 and April 2000, and again between August 2003 and March 2004. The Mine resumed production in March 2004 until February 2005. Since then, the Mine has remained in Care and Maintenance. Elgin was purchased in 2014 by Mandalay Resources Corp.

Since the purchase of Lupin in 2011 by Elgin, significant general site maintenance and facilities upgrades have been carried out and soil contaminated primarily with diesel fuel has been identified for remediation on-site. Surface exploration is conducted under a separate type B water licence. All camp infrastructure required for the surface exploration program currently exists at the Mine.

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Effective date:	December, 2014

3. Environmental and Sustainable Development Policy

LMI is committed to maintaining a safe, clean, compliant and respectful work environment. LMI looks to our employees, contractors and managers to adopt and grow a culture of social responsibility and environmental excellence. Together we achieve this by:

- 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.
- Procuring goods and services locally, where available, and favouring suppliers with environmentally and socially responsible business practices.
- 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.
- Working with stakeholders to identify and pursue opportunities for sustainable social and economic development and capacity building.
- Conducting early and ongoing stakeholder engagement relevant to the stage of project and mine development and operation.
- Recognizing diversity in the workplace and building meaningful relationships with all stakeholders in a timely, collaborative and transparent manner.

Through implementation of this policy, LMI seeks to earn the public's trust and be recognized as a respectful and conscientious employer, neighbor and environmental steward.

Approved by the Board of Directors on August 10th, 2012

4. Landfarm Siting

The landfarm is to be located within the foundation of the former paste backfill building, as shown on Photograph 1 and Appendix A. The overall foundation is 90 m by 30 m. A bund wall of approximately 1.0 m high surrounds most of the foundation. For this stage of Landfarming it is proposed to utilize the southern 17 m by 30 m section which is a raised concrete slab that is in good condition. Subsurface site drainage patterns were documented in the *Phase 1 and 2 Environmental Site Assessment* (Morrow 2005). Figure 2 is taken from that report and it shows that subsurface drainage from the landfill reports to the Lower Sewage Lake. The footprint of the facility and surrounding development rock has elevated metal concentrations (Morrow 2005) and remedial measure to address the contamination will be required during final closure of the mine site.

Figure 1: Foundation of former paste backfill building

Climate in this region is classified as semi-arid subarctic, with an average annual precipitation of about 300 mm and a mean daily temperature of -11°C. Average temperature for the months of May through September is 4.6°C (Canadian Climate Normals 1981 to 2010). Total precipitation at Lupin is 298.5 mm distributed about equally between rain (160.5 mm) and snow (138 mm) (Environment Canada, 2014). An extreme daily rainfall event of 41.8 mm was recorded on 9 July 1983.

The fuel handling facilities at Lupin include a main tank farm, a satellite tank farm and various other storage and day tanks containing diesel, gasoline, Jet A fuel, waste oil and glycol. The petroleum hydrocarbon and glycol handling systems are described in detail in the Fuel Containment Management Strategy (LMI 2012). Many of the day tanks described were removed from service or replaced with double lined tanks in 2012. The landfarm will initially be used to remediate petroleum hydrocarbon contaminated soil adjacent to the satellite tank farm. Additional areas of petroleum hydrocarbon impacted soil and development rock are known to be present at the site (Morrow 2005), however most of these areas will not be accessible until final closure when infrastructure has been removed.

The active layer is at least 1.5 m. Test pit excavated immediately adjacent to the landfill site indicates that native fine grained, silty sand is overlain by sand and gravel which is capped with a layer of development rock (Morrow 2005). No hydrocarbon contamination was detected in the test pit downgradient of the landfill site (Morrow 2005).

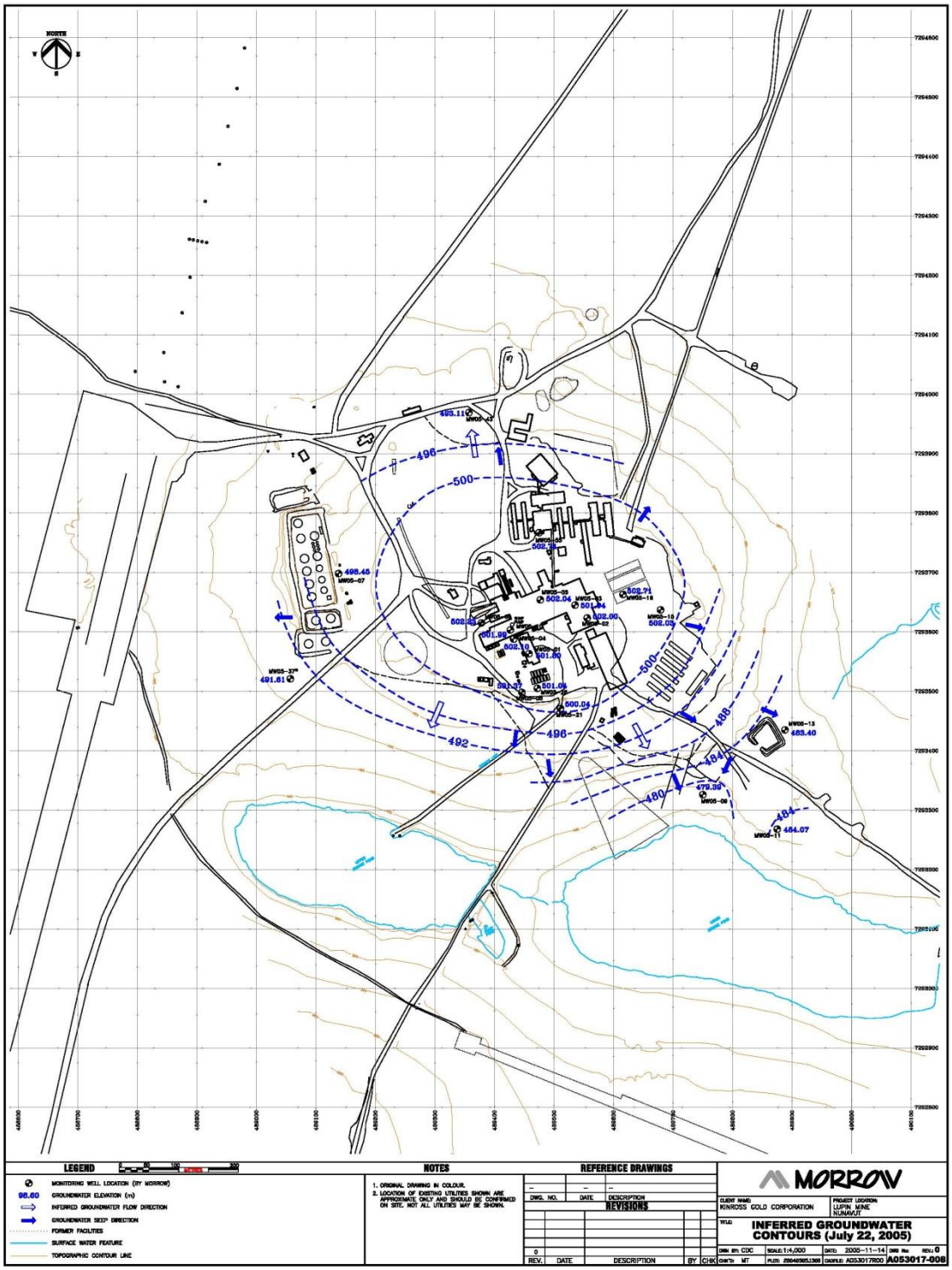


Figure 2: Inferred Groundwater Contours

5. Landfarm Design

The area of the foundation to be utilized for landfarming will initially be the southern 17 m by 30 m section of the foundation which is a raised concrete pad in good condition. Any cracks and holes in the concrete pad will be backfilled and sealed with concrete. The raised slab will be sloped 0.5% to allow for contact water to drain to a 5 m by 30 m by 0.5 m catchment sump located immediately adjacent to the north of the raised slab (See attached Figure 3: Drawing LMI-LF-001 and002 attached for details). Normal catchment will be retained within this sump area and pumped back onto the soil undergoing treatment or it will be pumped to an oil water separator for treatment if necessary (See Section 6-Moisture Management for further details.)

In general if there are any openings in the surrounding 1.0m wall, a new section of bund wall will be cast in place or an earthen berm will be established that will be lined with Reinforced Linear Low Density Polyetheylene (RLLDPE) geomembrane liner. Drawings LMI-LF-001 and002 show both a plan view and cross sectional view of the conceptual design. Final as-built construction drawings and a construction summary report will be prepared by a qualified Engineer and submitted within ninety (90) days following the completion of the landfarm.

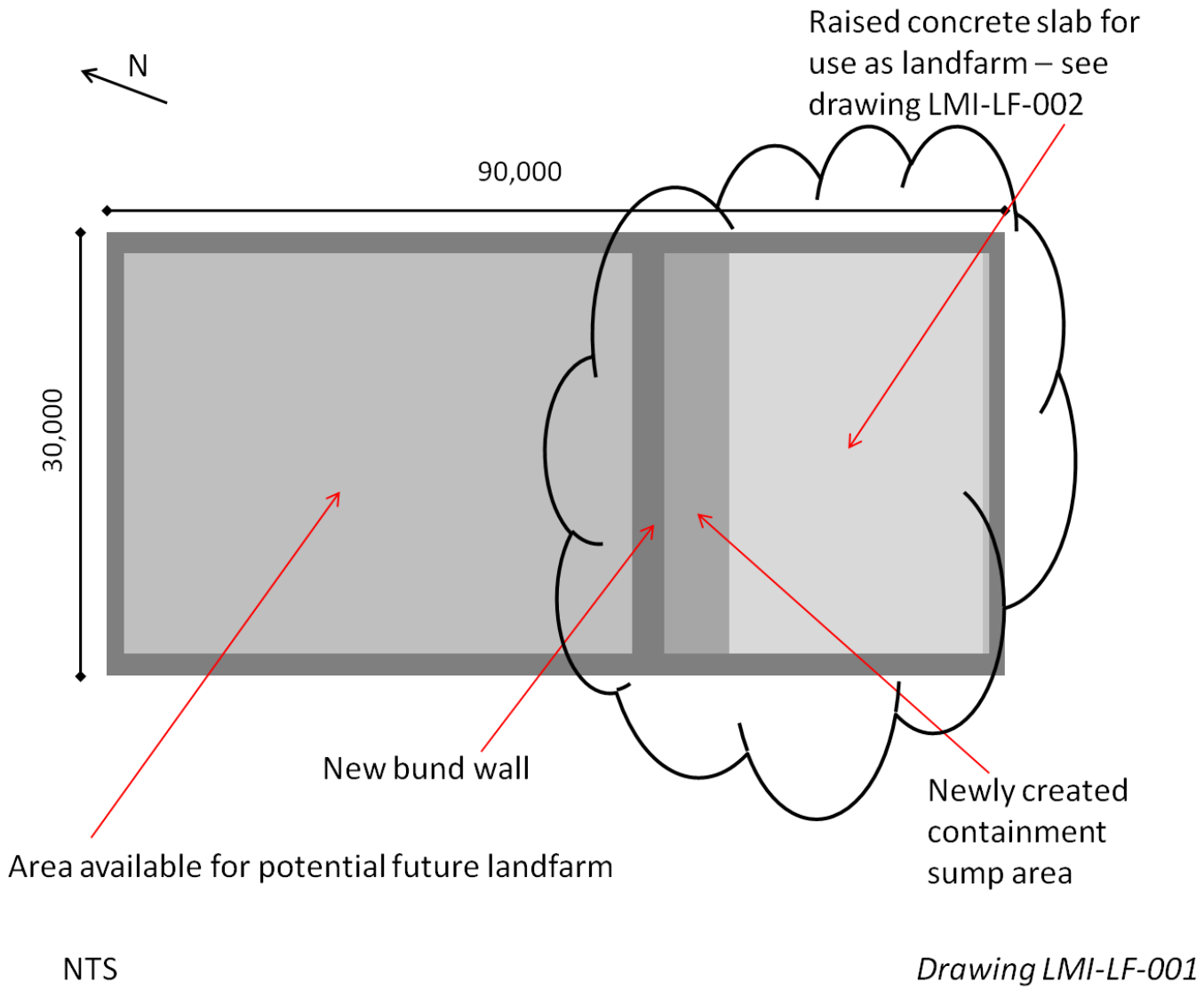


Figure 3 – Drawing LMI-LF-001

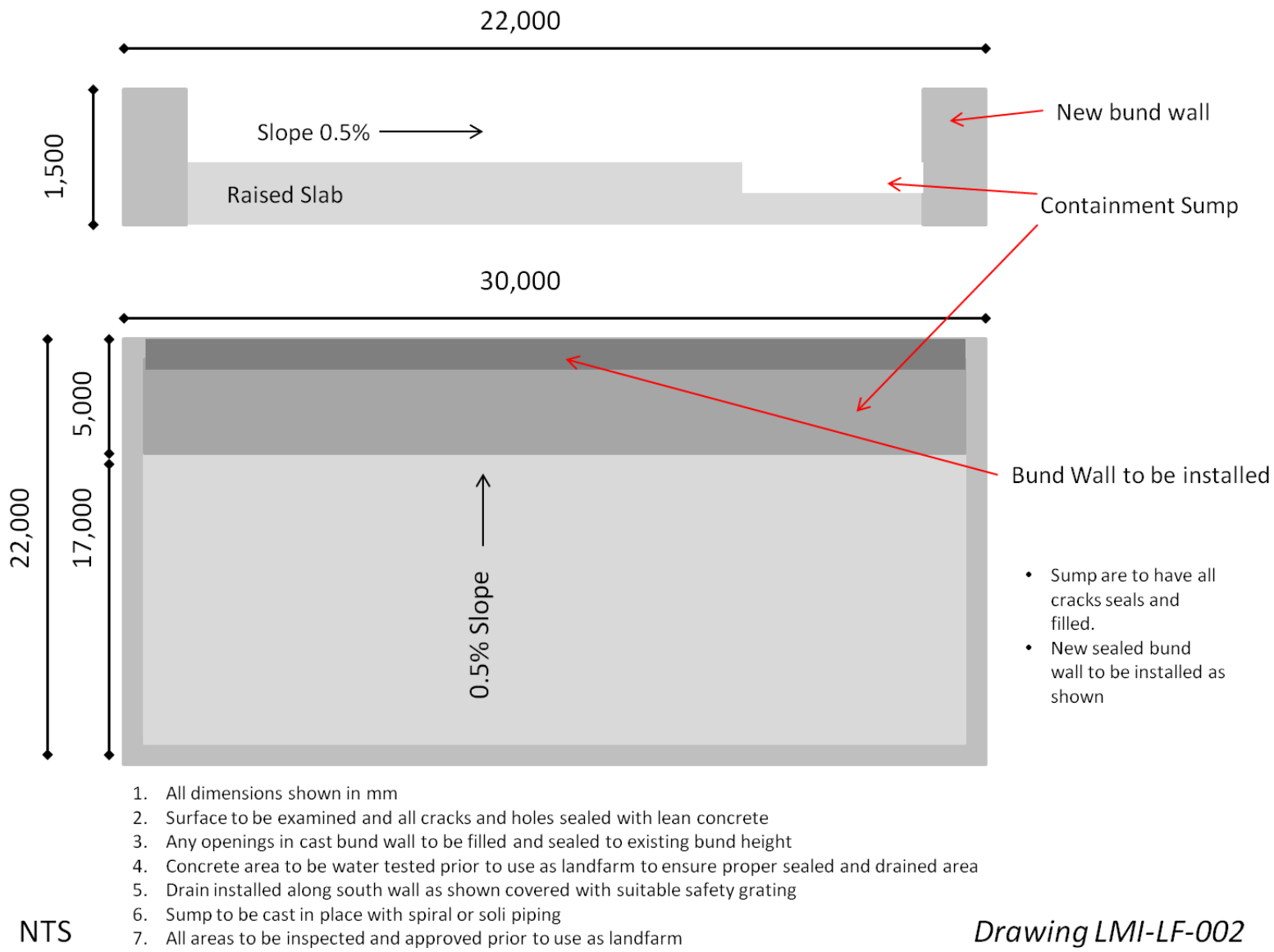


Figure 4 – Drawing LMI-LF-002

6. Landfarm Operating Procedures

Hydrocarbon impacted soil, that has resulted from gasoline and diesel fuel spills will be placed in the Landfarm area and treated one batch at a time. The soil will be aerated and additional measures will be taken to stimulate microbial activity based on test results. The Landfarm treatment season is generally from June to September.

Soil Preparation

Excavated petroleum hydrocarbon impacted soil will be transferred directly to the landfarm or stockpiled on an area known to be contaminated with hydrocarbons (i.e. between the Waste Oil Tank Farm and the Satellite Tank Farm). The stockpiled soil may be screened to remove rocks greater than 10 cm. The reject would then be screened a second time during dry weather to remove residual soils adhering to the rock.

Soil samples will be collected to test for levels of petroleum hydrocarbons, pH, total kjeldahl nitrogen, total phosphorous and microorganisms that target petroleum hydrocarbons (i.e. hydrocarbonoclastes) in the untreated soil.

Soil Mixing

The depth of soil to be treated will typically be 1.5 m. To optimize remedial performance the soil is to be aerated/mixed as needed during warm dry periods. The maximum soil height allowed within the soil treatment facility is 3.0 m measured from the base of the facility to the peak of the soil pile. During years where a discharge from the Tailings Containment Area is planned there will be sufficient activity at site to allow for regular turning of the soil within the landfarm. The soil is aerated/mixed in order to allow oxygen, nutrients and moisture to be blended with the soil. Mixing will also help minimize the occurrence of pockets of elevated hydrocarbons.

During periods of inactivity at the site the landfarm will be loaded to a depth of 0.3 m following the removal of the remediated soil. The thinner layer provides a larger surface contact with the air and maximizes the breakdown of hydrocarbons in the absence of biweekly aeration.

Soil may be mixed using handheld equipment or by using earth moving equipment taking care not to leave compacted soil within the landfarm.

Moisture Management

The landfarm soil should have between 5% and 35% moisture content to encourage bacterial growth. A handheld soil moisture meter will be used to monitor levels. In the absence of a soil moisture meter, there are some general principles for moisture management. After mixing the soil:

- Examine the soil for moisture content. The soil should be moist, but not wet.
- If the soil appears dry, add water as a spray overtop.
- If the soil is too moist, increase the mixing to promote evaporation.

Any excess water that accumulates in the landfarm is directed towards the sump. Contact water collected in the sump can be applied to the soil undergoing treatment during dry periods or it will be

transferred to an oil-water separator for treatment. The separated petroleum contaminated water will be stored in drums and subject to the handling conditions outlined in the Waste Management Plan.

Soil Amendment

During treatment, nutrients in the form of a commercial fertilizer (urea, DAP) may be added to the soil layer to promote bacterial activity. The volume of nutrients to be added to the soil will be based on the volume of soil being treated, the petroleum hydrocarbon concentrations and an assessment of nutrients available in the soil. Nutrient application rates will be based on a C:N:P ratio between 100:10:1 to 100:1:0.5.

Fertilizer is applied directly on the soil within the landfarm manually, taking care to evenly distribute the fertilizer overtop of the soil. Excessive nutrient application may negatively impact the soil bacteria.

The pH of the soil will also be tested and amended with lime if necessary.

Soil Removal

Once soil sampling has confirmed that the concentrations of hydrocarbons in the soil have reached acceptable levels, the soil will be made available for re-use on-site. Samples results along with volumes of treated materials removed from the facility will be documented in the annual report.

Soil quality remediation objectives for the treatment of contaminated soil at Lupin are listed in Table 1. The objectives were derived from generic commercial land use guidelines established in the Canadian Council of Ministers of the Environment (CCME) in Canadian Environmental Quality Guidelines (CCME 1999) and Canada-Wide Standards for Petroleum Hydrocarbons in Soil (CCME 2008).

Table 1: Soil quality remediation objectives for petroleum hydrocarbons

Parameter	Surface Soil (mg/kg)
Benzene	110
Toluene	250
Ethylbenzene	300
Xylenes	350
PHC Fraction 1 (F1)	320
PHC Fraction 2 (F2)	260
PHC Fraction 3 (F3)	1,700
PHC Fraction 4 (F4)	3,300
PAH Anthracene	32
PAH Benzo(a)pyrene	72
PAH Fluoranthene	180

7. Soil Sampling

Sample Plan

In accordance with the Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils (SAIC 2006, updated 2013) the sampling plan includes the methods (grid, composite) and frequency (number of samples per surface area).

Soil samples will be collected at the start of landfarm operations and at the end of each field season to characterize the material being treated. Confirmatory sampling will be undertaken to ensure that contaminated material is properly remediated prior to removing soil from the landfarm.

A composite sample to characterize the soil being treated is created by combining five contiguous discrete samples. Discrete grab samples will collected following the turning (aeration) of soil or during the placement of soil into the landfarm. The volume of soil represented by each composite sample will typically range from 50 m^3 to 150 m^3, with no discrete sample representing more than 50 m^3. Discrete samples will be analyzed by the laboratory as part of QA/QC measures.

Two composite sample areas (east half and west half) will be sampled during periods when there soil in the landfarm exceeds 0.3 m depth. Only one composite sample is required when the depth of soil in the landfarm is 0.3m.

Quality assurance and control (QA/QC) measures associated with the collection and analysis of the soil samples included the comparison of field screening results with laboratory data and laboratory analysis of blind duplicates and discrete QA/QC samples. Blind field duplicate samples monitor a combination of the precision of the laboratory analyses, sample preparation errors, sample collection errors and genuine short scale variations in soil geochemistry. Discrete samples monitor the homogeneity of composite sample areas.

The QA/QC sampling plan requires one duplicate and three discrete samples from one of the composite sample area for every ten composite samples submitted for laboratory analysis.

Sampling Procedure

Clean disposable nitrile gloves should be used to transfer the soil into the sample container. Gloves should be disposed of between sub-sample locations. Sample containers will be provided by the analytical laboratory.

Samples for petroleum hydrocarbons will be submitted to an accredited chemical analysis laboratory. The petroleum hydrocarbon analyses include:

- benzene, toluene, ethyl benzene, xylenes (the BTEX compounds); and
- petroleum hydrocarbon (PHC) Fractions F1 through F4.

The chemical samples have a holding time of 7 days. Therefore, samples will be shipped to the laboratories as soon as possible after sample collection. The samples should be kept at a temperature between 0°C and 4°C. All soil samples are to be analyzed at a laboratory accredited by the Canadian Association for Environmental Analytical Laboratories.

8. Safety During Landfarm Operations

Operation of the landfarm can involve potential exposure to both physical and chemical hazards and noise. Site workers will be required to operate and work around equipment and collect soil samples. Physical hazards will include heavy lifting, working near heavy equipment, and walking over soft and uneven soil.

Chemical hazards include potential exposure to petroleum hydrocarbons through:

- dermal contact (getting soil on the skin or in the eyes);
- ingestion (getting contaminated soil in the mouth); and
- inhalation (breathing in hydrocarbon vapours or dust).)

Mitigation of dermal contact exposure to hydrocarbons will be achieved by providing Personal Protective Equipment (PPE) including protective coveralls, boots, gloves and safety glasses that are worn whenever the workers are on the landfarm. Workers will be advised of the location of the nearest safety shower and eyewash stations.

Potential exposure through ingestion can be mitigated by having the workers thoroughly clean hands and faces (with soap and water) and removing all PPE before meals and breaks (including cigarette breaks).

Mitigation of potential exposure through inhalation will be mitigated by avoiding working on the landfarm during times of high hydrocarbon volatilization (e.g. mid-day, high temperatures), managing moisture content in the soil to avoid dust, and provision of respiratory protective equipment.

Physical hazards will be mitigated by ensuring that there are adequate workers to lift and move heavy objects. It is important to remember that equipment operators have a limited field of vision. Always make eye contact with the operator of the equipment. The following precautions should also be taken:

- Never approach an operational piece of heavy equipment until the operator is aware of your presence, your desire to approach and signals the OK.
- Stand in a safe location well outside the maximum extended reach of the shovel or excavator arm, and out of the way of other mobile equipment. With an excavator, the optimum location is within the quadrant of the operator's visual coverage.

Adequate breaks will be provided to minimize continuous exertion. Care should be taken that adequate fluids (e.g., water) are consumed during periods of exertion to prevent dehydration.

Noise exposure will be mitigated with the use of hearing protection. Hearing protection must be worn at all times while operating heavy equipment.

The following PPE is required when working on the landfarm:

- Half mask respirator with cartridges to protect from organic vapours and dust;
- Disposable Hydrocarbon-resistant gloves;

- Leather over-gloves;
- Steel-toed rubber boots;
- Safety glasses;
- Hearing Protection;
- Coveralls; and
- Head Protection CSA-approved hard hats.

Prior to commencing work on the landfarm, all workers involved with the landfarm operations must have a safety orientation.

9. References

Canadian Council of Ministers of the Environment (CCME), 1999 – Updated to September 2014. Canadian Environmental Quality Guidelines. Canadian Council of Ministers of the Environment, Winnipeg.

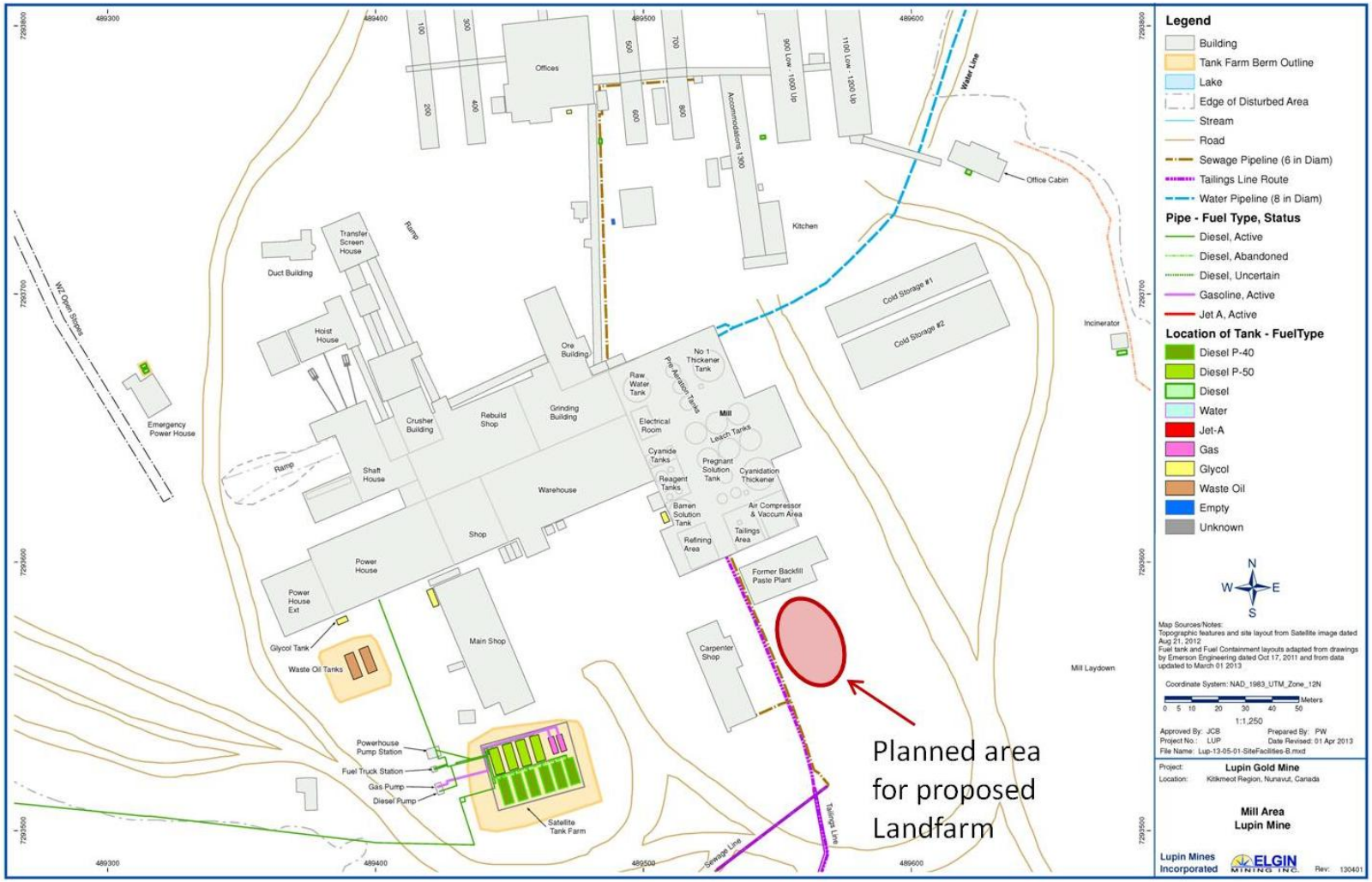
Canadian Council of Ministers of the Environment (CCME), 2001, Revised 2008. Canada-Wide Standards for Petroleum Hydrocarbons in Soil: Technical Supplement. January 2008.

Environment Canada, 2014. 1981 to 2010 Climatic Normals station data. http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=1671&autofwd=1

Morrow Environmental Consultants Inc., a member of the SNC-Lavalin Group; Phase 1 and 2 Environmental Site Assessment, Lupin Mine Site, Nunavut Territory; January 2006.

SAIC Canada, 2006. Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils. Prepared for Environment Canada. March, 2006

Appendix A – Proposed Lupin Mine Site Landfarm Location



Appendix B – N/A