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NWB2MZE
Our file - Notre référence
9545-2-2-MZE-G

April 23, 2004

Phyllis Beaulieu
Licencing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Via e-mail

Dear Ms. Beaulieu

Re: Application for Type B Water Licence, Placer Dome (CLA) Ltd.
Maze Lake Project: 62° 19.'8 N // 093°40.'2 W

INAC Water Resources is satisfied that the proponent has adequately addressed the key areas of concern, however, the reviewer has several recommendations and comments to offer at this time.

Water Consumption

Page 7 of the Project Description indicates that water consumption – domestic and industrial combined – will be in the order of 1000 (990) litres per day, however, Page 4 of the NWB application indicates that water use will be in the order of 4,900 litres per day. Which is it?

Drilling and Drill Sumps

- The sumps should only be used for inert drilling fluids, not any other materials or substances. All sumps should be constructed of materials that normally exhibit low permeability and in a manner that prevents intrusion of runoff water.
- All drilling waste should be contained in the drill waste sump at a minimum of one (1) metre below the active layer of permafrost. In the event the initial sumps do not consist of low permeability materials, the proponent should construct an offsite sump which fulfills the aforementioned requirements.
- Drilling fluids from the sumps should not be permitted to enter into any waters or onto any land surface where the drilling fluids may enter any waters.
- If during the drilling, an artesian aquifer is encountered producing water flowing at the surface, the proponent should immediately notify the licencing/permitting agency. Samples of the water may be required for analysis.

Canada

- Drilling additives or muds shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

Spill Contingency Plan

Overall, the spill contingency plan is satisfactory. The reviewer has a few minor comments to offer:

1. The proponent should advise the NWB as soon as they have identified the person in charge of the camp and the person responsible for activating and overseeing the implementation of the spill plan. A 24 hour contact number should be included with this information.

2. The proponent should provide a description of the spill response training, that they intend to provide to their personnel. This information is useful to regulatory agencies in that it allows them to determine how well-prepared a proponent is to deal with accidental spills. Proper training of the spill response crew is one of the key elements of an effective and efficient response plan. It is therefore strongly recommended that camp personnel be provided with basic spill response training; preferably the type of training which provides practical, hands-on exercises.

3. The proponent should provide a more detailed description of how they intend to dispose of spilled product and materials contaminated by spilled product. The plan indicates that these are to be sealed in drums (and presumably flown out), which is acceptable, however, in the event that they run out of containers in which to put the spilled material, they should have an alternative plan for disposal.

4. The reviewer recognizes that this is a small camp and therefore it would be unreasonable to expect them to have on hand, the requisite equipment for every conceivable (and unlikely) occurrence. Nevertheless, by their own accounting, they intend to store 11,000 gallons of fuel, in 248 drums, on site. In the event that the proponent does not have enough material on site to deal with a major spill (which occasionally happens; even in small camps), they should make prior arrangements to have additional equipment brought in if it becomes necessary to do so. Such a contingency for outside assistance should be described in the plan.

Sewage Management

The proponent has described what appears to be a novel idea for managing sewage in that they intend to collect human waste in plastic bags, fill these with sawdust (presumably to absorb the liquid portion), and incinerate the contents. The reviewer would appreciate the proponent describing this proposed method in greater detail. For example, it is not clear how they intend to incinerate material which would presumably have a very high – virtually saturated – moisture content.

Incinerator:

The reviewer notes that the proponent intends to use the enhanced 45 gallon burn barrel as described in an earlier INAC submission for managing, in addition to domestic solid waste, human waste. The reviewer should caution the proponent that this design was not intended, and in fact, may not be suitable for, incinerating human waste/sewage.

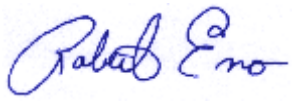
Greywater Management and Closure of Sumps:

INAC recommends that the proponent consult with the Department of Health with respect to the daily management and final closure of greywater sumps.

Other Comments:

The reviewer has appended to this letter, general recommendations and guidelines for land use and exploration activities. Some of the recommendations contained therein, are redundant as they are already listed in the body of this letter. They have, nevertheless, been attached for the proponent's edification. The proponent should make every effort, where applicable, to observe these guidelines and recommendations.

The reviewer commends the proponent for assembling a very thorough and obviously well thought out project description and contingency plan.



Robert Eno
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Legislative Authority

Indian and Northern Affairs Canada (INAC), Water Resources Division, derives its regulatory mandate from the *DIAND Act*, and the *Nunavut Waters and Nunavut Surface Rights Tribunals Act*. The latter Act essentially forbids the deposition of a waste into Nunavut waters, except under certain regulated terms and conditions dictated (as in a Water Licence) by the Nunavut Water Board. A waste is defined as any substance which, when deposited into the water, will alter its quality to the detriment of fish, animals, humans or plants.

In reviewing land use and other permit applications, INAC Water Resources Division observes, in addition to our own legislation, other pertinent Federal Acts and Regulations such as the *Fisheries Act*, the attendant *Metal Mining Effluent Regulations* and the *Canadian Environmental Protection Act* ("CEPA").

In addition to Federal Acts and Regulations, the Territorial governments in Nunavut and the NWT have adopted a number of very useful regulations and guidelines under their respective Environmental Protection Act (s). INAC believes that these Acts, Regulations and in particular, guidelines, are quite helpful in assisting proponents to tailor their projects in such a manner that ensures that they will be in compliance with the overall spirit and intent of the various pieces of environmental legislation that govern development activities in Nunavut. These regulations and guidelines include, but are not restricted to, *Spill Planning and Reporting Regulations*; *Environmental Guideline for the General Management of Hazardous Waste*; *Environmental Guideline for Industrial Projects on Commissioner's Lands*; *Environmental Guideline for Industrial Waste Discharges* and the *Environmental Guideline for Site Remediation*. INAC advises the proponent to contact the Government of Nunavut, Department of Environment, for further details.

Spill Contingency Plan

The applicant should have a ccontingency plan for responding to chemical, petroleum and other spills which might occur during the proposed activity. The Spill Contingency Plan should be a stand-alone document and should contain as a minimum, the following information:

1. The name, address and contact number for the person in charge, management or control of the contaminant (in this case, fuel oil and any other chemicals associated with the program).

2. The name and address and telephone number of the employer.

3. The name, job title and 24 hour contact number for the person or persons responsible for activating the spill plan.

4. A detailed description of the facility, including its geographic location – in UTM coordinates (map sheet number, Eastings and Northings) and geographic coordinates (Lat/Long) – size and storage capacity.

5. A description of the type and amount of contaminants stored on site.

6. Steps taken to report, contain, clean up and dispose of a spill.

7. A site map of sufficiently large scale to show the location of buildings, contaminants storage areas, sensitive areas such as water bodies, probable pathways of contaminant flow and general topography.

8. A description of the spill response training provided to employees who will respond to a spill.

9. An inventory and location of the response and clean up equipment available to the spill clean up team.

10. The means by which the spill plan is activated.

11. The date that the spill plan was prepared.

It should be noted that some of the above information requirements may be waived where they are considered to be unreasonable or unnecessary. This will be determined on a case by case basis.

The Government of the Northwest Territories' Environmental Protection Service developed a very useful set of *Spill Planning and Reporting Guidelines* to complement their *Spill Contingency Planning and Reporting Regulations*; both of which were adopted by the Government of Nunavut in April,1999. Environment Canada also developed their own *Guidelines for the Preparation of Hazardous Material Spill Contingency Plans*. The proponent is advised to obtain copies of these documents as they contain a great deal of useful information that will assist them in developing/updating their spill contingency plan. If the proponent is unable to obtain copies of these documents, INAC will be pleased to provide, upon request, electronic copies.

Fuel Storage

To prevent spreading in the event of a spill, fuel stored in drums should be located, whenever practical, in a natural depression a minimum distance of 30 meters from all streams, preferably in an area of low permeability. All fuel storage containers should be situated in a manner that allows easy access and inspection as well as removal of containers in the event of leaks or spills. Large fuel caches in excess of 20 drums, should be inspected daily. Additionally, the proponent is strongly advised to keep a written log of the inspections. For long term storage (> 6 months), it is strongly recommended that drummed fuel be stored on pallets to prevent the bottoms from rusting out.

Heating Fuel Tank Installations

All fuel tanks, connectors and associated plumbing should be installed in a manner that meets current acceptable codes for the installation of such appliances. Fuel tanks should be situated on solid platforms, on a stable base, and should inspected on a regular basis for leaks and movement (shifting). Flex connectors, if used, should be installed as per manufacturer's instructions and should be inspected regularly. It should be noted that many spills in Nunavut result from improperly installed heating fuel tanks and especially flex connectors.

Chemical Storage

All chemicals should be stored in a safe and chemically-compatible manner a minimum of 30 meters from all bodies of water. The applicant should be required to remove unused chemicals for reuse or disposal to an approved site using methods approved by the Land Use Inspector. Material safety data sheets (MSDS) should be provided for each chemical and should be posted in a central location; accessible by all camp personnel. Camp personnel should be conversant in the handling of these chemicals as well as be able to deal with any accidents or spills involving that chemical.

Location of Hazardous Materials

Hazardous materials stored on-site should be marked so they will be visible under all conditions, in all seasons. This recommendation is intended to prevent possible injuries to camp personnel and/or damage to the containers. Unless otherwise specified by the land use inspector or licence -issuing agency, all hazardous materials should be removed from the site upon completion of the activity.

Waste Oil/Waste Fuel Disposal

Waste oil and waste fuel should be removed and returned for recycling or destruction when the land use activity is completed. Alternative methods of disposal that provide an equivalent level of environmental protection will be considered on a case-by-case basis.

Used Drums

Used fuel and oil drums should be removed from the site, returned for deposit, or reused.

Contaminated Soil

Soil contaminated by fuel (e.g., soils from under a old storage tanks) can be treated on site, such as by land farming, incineration or thermal desorption; or it should removed to an approved disposal facility and replaced with new soil.

Winter Roads

- Existing winter road routes and trails should be used whenever possible, to avoid unnecessary land clearing and disruption of site hydrology.
- Speed on winter roads should not exceed: 30 km/hr for fully loaded vehicles; 50 km/hour for empty vehicles.
- Trucks should carry at least 10 square meters of polyethylene material (for lining a trench or depression), a spark-proof shovel & oil absorbent blankets or squares.
- Trucks should carry reliable radio and/or satellite phone communications.
- Trucks should carry sufficient response equipment for the safe removal of fuel from an overturned tanker (such as hatch cone covers, hoses etc).

- In general, the proponent should be fully prepared to deal with spills resulting from vehicle accidents along the road in a timely and efficient manner.

Drill Sumps

- The sumps should only be used for inert drilling fluids, not any other materials or substances. All sumps should be constructed of materials that normally exhibit low permeability and in a manner that prevents intrusion of runoff water.

- All drilling waste should be contained in the drill waste sump at a minimum of one (1) metre below the active layer of permafrost. In the event the initial sumps do not consist of low permeability materials, the proponent should construct an offsite sump which fulfills the aforementioned requirements.

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- If during the drilling, an artesian aquifer is encountered producing water flowing at the surface, the proponent should immediately notify the licencing/permitting agency. Samples of the water may be required for analysis.

- Drilling additives or muds shall not be used in connection with holes drilled through lake ice unless they are re-circulated or contained such that they do not enter the water, or are demonstrated to be non-toxic.

Garbage Disposal

Garbage should be removed from the camp periodically; alternatively, all combustible wastes can be incinerated on site and non-combustibles collected and removed upon termination of the activity. INAC is willing to review any proposal which provides acceptable levels of environmental protection and meets current best practices.

Incineration

For camps of less than 10 people, it is recommended that a burn barrel be employed to dispose of the combustible wastes. A burn barrel is essentially a 45-gallon drum or equivalent, with a hole cut into the bottom to facilitate air intake, and is closed at the top with a lid and a chimney for the exhaust. INAC does not consider burning wastes in a burn barrel to be true incineration, however, for small camps, this is an acceptable means to deal with combustible wastes. The burn barrel should be operated so that a high temperature burn is maintained at all times. This will promote complete combustion and eliminate pollutant and odour concerns.

For camps of more than 20 people, it is recommended that a properly-designed, commercially-available incinerator be used to manage wastes. Once again maintaining a high temperature burn to reduce wastes and prevent the creation of toxic by-products, is imperative.

Kitchen wastes, cardboard, paper products, packaging and untreated wood wastes are suitable for

incineration in a burn barrel and an incinerator. Industrial wastes and non combustible wastes should be removed from the camp and disposed of at a designated landfill or other approved facility. Under no circumstance should hazardous wastes be managed through open burning or incineration.

For camps of greater than 50 people, it is recommended that a municipal waste incinerator, which produces emissions that meet CCME air quality guidelines, be used to dispose of camp wastes. The manufacturer will specify operating conditions and types of wastes that can be disposed of in the incinerator in order to meet the specified CCME standards. It is recommended that municipal waste incinerators be operated to meet manufacturer specifications.

Greywater & Sewage

For small temporary camps, sewage and greywater can be deposited in a sump or pit which must be located at least 30 meters from the high water mark of any water body. Open pits should be regularly treated with lime to avoid attracting animals and for general pest/insect control. Upon cessation of the project, pits and sumps should be treated with lime and in-filled with native soil.

For larger camps, it may be necessary to construct more elaborate sewage and greywater management systems. INAC will address these on a case by case basis. It is strongly recommended that the proponent consult the Department of Health for further recommendations.

The aforementioned recommendations are a brief outline of what INAC suggests that a proponent should be implementing to mitigate any damage or alterations to the environment during the course of their proposed activities. In terms of legal compliance, the proponent is referred to the various Federal and Territorial Acts mentioned earlier in this document and which directly or indirectly govern land and water use activities in Nunavut.