ᐊᕙᑎᓕᕆᔨᒃᑯᑦ

Avatiligiyiit

Department of Environment

Ministère de l'Environnement

June 4, 2007

Richard Dwyer
Licensing Trainee
Nunavut Water Board

via Email to: licensingtrainee@nunavutwaterboard.org

RE: NWB FILE # 2BE-MEL – COMAPLEX MINERALS CORP. – MELIADINE LAKE EXPLORATION & BULK SAMPLING PROJECT

Dear Mr. Dwyer:

The Government of Nunavut, Department of Environment (DOE) has reviewed a water licence amendment application for the Meliadine Lake Exploration and Bulk Sampling project located 35 km northwest of Rankin Inlet, submitted by Comaplex Minerals Corp. The DOE believes the project will not result in significant adverse effects although the potential for negative environmental impacts exists. Based on our legislative mandate under the *Environmental Protection Act*, the DOE has the following comments to make regarding water quality, waste management, and abandonment & restoration.

1. WATER QUALITY

Acid Rock Drainage (ARD)

- To predict ARD, it is recommended that both static tests such as acid base accounting (ABA) tests, and kinetic tests are performed. Appendix I of the "*Acid Base Accounting and Metals Leaching Analyses*" document indicated that some samples from mine walls and waste rock were classified as acid generating or potentially acid generating. The DOE therefore recommends further testing such as kinetic tests be performed to ensure ARD will not be an issue in the long term in the field.

  If test results indicate that ARD is an issue, proposed mitigation measures using nearby carbonate rock to neutralize the acid, should be submitted in details to demonstrate this approach would work in perpetuity. The mitigation and management plan should include information such as the amount of rock to be neutralized, rock locations of concerns, engineered drainage plans for the pits and waste storage areas, the amount and ability of calcareous rock to

P. O. Box 1000, Stn. 1360 PH: (867) 975-7733
Iqaluit, Nu X0A 1H0 FX: (867) 975-7739

buffer the run-off, and effluent monitoring plans. Furthermore, the proponent should also outline adaptive management measures and triggers that would be used if mitigation measures prove ineffective.

- The proponent used the INAC guidelines for acid-base accounting (ABA) screening criteria as one means of ARD determination. Since these were published in 1992, there has been a move toward more stringent ABA screening criteria. In 2005, the draft "Mine site Reclamation Guidelines for NWT and Nu" included consideration of William A. Price's 1997 screening criteria to classify all rock materials. The DOE therefore recommends that the proponent use Price's screening criteria as a safeguard to protect the environment from potential impacts of ARD.

Metal Leaching (ML)

- Page 10 of the *Acid Base Accounting and Metals Leaching Analyses* document stated that "it is possible that concentrations of some trace elements in seepage from the waste pile will exceed CCME guidelines for freshwater aquatic life. Further testing is therefore required to estimate the potential magnitude and rate of metal release from these materials." Additionally, leach extraction results on page 10 indicated that "the number of samples is too few to determine the potential variability in concentrations within or between each of these rock types." The DOE believes the results submitted are inconclusive, and further kinetic testing as recommended by the proponent themselves should be submitted for review to ensure ML will not be a concern in the future.

  If testing demonstrates that ML is a concern, appropriate mitigation management and monitoring plans should be submitted by the proponent for review. The proponent should confirm ML potential before using any waste rock for construction purposes as proposed in the project description.

Ammonia Run-off

The proponent proposed using a dam to intercept probable ammonia run-off and disperse these residues from blasting activities via spray irrigation to nearby tundra. To ensure the effectiveness of this mitigation measure in protecting local water resources, the proponent should demonstrate effectiveness of this methodology through modeling and/or case studies at other sites. Information such as suitability of the site for spray irrigation, volume of run-off, expected concentrations of ammonia, the amount of tundra area needed to absorb the run-off and sensitivity of local water courses, should be provided by the proponent. Finally, results of monitoring as proposed should comply with the Canadian Council of Ministers of the Environment (CCME) guidelines for receiving water quality.

2. WASTE MANAGEMENT

Spill Contingency Plan

Based on the DOE *Spill Contingency Planning and Reporting Regulations*, and *A Guide to the Spill Contingency Planning and Reporting Regulations*, we have the following comments to make:

- 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 be 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 and maintained heating fuel tanks and especially improperly-installed flex connectors.

- For overland transportation of fuel, the following standards are recommended:

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

- A detailed description of the spill response training that will be delivered to Comaplex's emergency responders should be included with the plan. The qualifications and background of the instructor(s) as well as well as a course outline should also be provided. This information is useful to regulatory agencies in that it allows them to determine how well-prepared the proponent is to deal with hazardous materials spills.

- The NWT-Nunavut spill report form has been updated, and can be obtained from the Spill Line.

- The DOE monitors the movement of hazardous wastes, from generators, carriers to receivers of the wastes, through the use of a tracking document

known as a Waste Manifest. A Waste Manifest must accompany all movements, and all parties must register at the DOE with Robert Eno at (867)975-7748 or reno@gov.nu.ca.

Camp Incinerator

The Government of Nunavut is signatory to *Canada-Wide Standards (CWS) for Dioxins and Furans*, and Canada-*Wide Standards for Mercury Emissions*. The DOE therefore requests the proponent ensures incineration emissions comply with the CWS by implementing the following recommendations.

For a camp of 10 to 50 people, the proponent shall apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, forced-air incinerator is recommended. The proponent shall make determined efforts to achieve compliance with the CWS. Efforts should include the implementation of a comprehensive waste management strategy (especially waste segregation) that is designed to reduce and control the volumes of wastes produced, transported, and disposed of. The Waste Management Strategy should consider and include:

- Purchasing policies that focus on reduced packaging,
- On-site diversion and segregation programs (i.e. the separation of non-food waste items suitable for storage and subsequent transport and disposal or recycling).
- If incineration is required, ensure diligent operation and maintenance of the incineration device and provide appropriate training to the personnel operating and maintaining the incinerator.

Waste wood treated with preservatives such as creosote, pentachlorophenol or heavy metal solutions should not be burned. Additionally, plastics, electrical wire, asbestos and building demolition wastes (except clean wood) are wastes likely to produce dioxins and furans when burned and should be excluded from incineration. Furthermore, hazardous wastes such as waste oil managed via incineration is not recommended; if this is carried out as proposed in the project proposal, the proponent should demonstrate compliance with the CWS.

3. ABANDONMENT & RESTORATION

Based on the DOE *Guideline for Contaminated Site Remediation*, we have the following recommendations to make:

- Drill holes should be backfilled or capped at the end of project. The sumps should only be used for inert drilling fluids, not any other materials or substances, and be located at least 30 meters from the high water mark of any water bodies. The sumps should be properly closed out at the end of a project.

- Soil contaminated by fuel (e.g., soils under an old storage tank) should be treated on site or removed to an approved disposal site and replaced with new soil. Soils in the vicinity of fuel and/or chemical storage should be tested and disposed off if necessary.

- In the case where exploration will not proceed to a mine, the proponent indicated that a final abandonment & reclamation plan will then be developed in consultation with the KIA to restore the project site. The DOE recommends the plan be submitted for review to relevant regulators, and must be developed in the context of the results of further testing of acid rock drainage and metal leaching potential as described above.

The DOE thank the NWB for giving us the opportunity to review and provide comments on the Meliandine Lake exploration and bulk sampling project. Please contact us if you have any further questions or comments.

Yours sincerely,

Original signed by

Helen Yeh
Environmental Assessment Coordinator
Department of Environment
Government of Nunavut
P.O. Box 1000, Stn. 1360
Iqaluit, Nu X0A 0H0
PH: (867) 975-7733
FX: (867) 975-7739
EM: hyeh@gov.nu.ca