



AANDC, Nunavut District Office
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November 2, 2012

Theodore Muraro
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RE: Inspection of 2BE-IZO0712 July 3rd, 2012

Please find attached the report on the Water License Inspection conducted at the Izok Lake Project on July 3, 2012. Included at the end of the report is a summary of observations made during the inspection with respect to issues of non-compliance or non-conformity with the issued Water License or the Nunavut Water and Nunavut Surface Rights Tribunals Act, and the actions required of MMG as a result.

The role of Aboriginal Affairs and Northern Development in issues related to the use of water or deposit of waste in Nunavut is one of compliance monitoring and enforcement. AANDC's preferred option is to work with clients to address instances of non-compliance with their authorizations or the Act and risks to the environment.

Should you require more information or clarification on any aspect of the enclosed report please contact the undersigned at the coordinates listed below. I look forward to continuing to work with you and your staff. If you have any questions please do not hesitate to contact our office here in Iqaluit.

Sincerely,

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Attachments: 2BE-IZO0712 July 3 2012 Inspection Form
2BE-IZO0712 July 3 2012 Inspection Photos

Cc: Phyllis Beaulieu – Manager licensing – Nunavut Water Board



License #: 2BE-IZO0712

Inspector: Eva Paul

Inspection Date: July 3rd, 2012

CIDMS # 603530

Client	Minerals and Metals Group (MMG)		
Mailing Address	555-999 Canada Place Vancouver, BC V6C 3E1		
Inspection site location	Izok Lake Project		
Contact name	Theodore Muraro	Title	Operations Manager
Last inspection date	July 10, 2011	July 29, 2010	
Region	Kikmeot		



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The Izok Lake Project camp (Ham Lake) is located generally at Latitude 65°40'00"N Longitude 112°50'00"W in the Kitikmeot Region of Nunavut. MMG's Type 'B' mining and milling water licence, 2BE-IZO0712, was issued May 4, 2007 and expires December 31, 2012. Other current authorizations with AANDC related to the Izok Lake Project include:

Land Use Permit: N2012C0005

Land leases: SL-86I/2-1 (Hood)
SL-86H/10-1 (Izok Lake)
SL-86H/10-2 (Ham Lake)

Various mineral leases and claims

On the July 3rd 2012 a compliance inspection was carried out at the Izok Lake Project and Hood site. AANDC Inspectors Eva Paul and Melissa Joy were accompanied by Greg Duso, Project Manager. A Report Form was left on-site following the inspection and signed by Greg Duso, which outlined the following compliance issues to be addressed:

- Daily water consumption in excess of the licensed amount.
- Shallow water body chosen at drill 1466.
- Inappropriate materials being burned in the incinerator.
- Open burning as a disposal method is not authorized under the licence without explicit Board approval.
- Liners needed under all fuel transfer areas (bowzers, storage tanks, bulk drum storage, heli refuelling at Hood).
- Daily inspections of fuel caches.
- Amendment/renewal of licence required to capture full water usage and to accurately reflect activity at Hood and Gondor sites.

This report includes a detailed administrative review, a review of all notes and photographs taken during the July 3rd inspection, and reflects those compliance issues which have been addressed and reported on since July 3rd.

Part A: Scope, Definitions and Enforcement

At the time of the inspection and this writing, the Licensee holds a current authorization (Water Licence); however, the licence expires December 31, 2012. The licensee was advised at the time of the inspection to file their renewal prior to the expiry of the current licence.

Part B: General Conditions

At the time of this writing, Annual Reports for 2008 and 2009 are outstanding, as requested by the Nunavut Water Board on October 3, 2012 (2011 was submitted on October 5, 2012 following that request). Annual Reports are an important source of information for the Board and the Inspector and are to be submitted no later than March 31st of the year following the calendar year being reported, as per Item 2 of this Part.

Water use reporting is inadequate, as discussed in detail under Part J of this report. It is noted that the annual reports submitted (2007, 2010, and 2011) include inadequate descriptions of progressive or final reclamation work that has taken place, and no photographs, as required under item 2(iv). Progressive reclamation of drill sites, for example, is to be documented and included in the reports.

Part C: Conditions Applying to Water Use

Water for camp use is drawn from Ham Lake. Water for drilling is drawn from water bodies proximal to the drills. Drill 1466 was inspected and was found to be drawing from a very shallow water body. The drillers were directed at the time to choose a larger water source. A screen was noted on the intake at the time. During the inspection, it was determined that daily water use exceeded the 100 m³ as allowed in the licence, and the company was directed to apply for an amendment to the licence. A post-inspection review of the 2012 water usage logs submitted to the Inspector shows that water usage for drilling activities exceeded the licensed amount of 100 m³ on 60 of 79 drilling days. Drill 1466 alone exceeded 100 m³ on 20 of the 70 days that it was active. An amendment



application was not submitted until late September 2012, in which MMG did not increase the water quantity requested in the licence as directed. For the 2012 season, MMG is in violation of their daily allowable water usage.

Part D: Conditions Applying to Waste Disposal

Open burning was noted at the Hood site, as a method of disposal of old camp buildings. Open burning is inconsistent with item 2 of this Part. Metals, plastics, and other inappropriate materials were found in the incinerator ash, inconsistent with item 3 of this Part. MMG was advised to immediately implement waste sorting practices prior to incineration. Further, the ash from the incinerator still smelled strongly of food, which is a strong indication that incomplete combustion of waste is occurring. The licensee is to determine how to achieve complete combustion through better management practices or machine maintenance. To this end, an incinerator management plan or operations and maintenance manual is to be submitted with the 2012 Annual Report.

At the time of the inspection, hazardous waste manifests provided by KBL Environmental were produced and found acceptable. It has since been brought to AANDC's attention that while KBL is a licensed waste transfer facility, it is not a waste receiver facility for many products – KBL sends them out to facilities farther south. Heretofore, the Inspector requires that proof of FINAL DISPOSAL of hazardous waste be made available to the Inspector upon request.

Part E: Conditions for Camps, Access Infrastructures and Operations

Item 5 was not explicitly satisfied during the life of the licence; however, the licensee has notified the NWB that the Bulk Fuel Storage Facility in question is no longer in use. Five new fuel storage tanks are in place. They are double-walled 11,000 L tanks, but not currently contained within a berm. A liner was installed under the heavy equipment parking area following the 2011 inspection; however, the liner at the fuel transfer station (FTS) was still outstanding at the time of this inspection. Liners were installed subsequent to this inspection at the FTS and in the maintenance shop and a report submitted to the Inspector on July 9th, 2012. It is unclear from the photographs provided from the FTS installation whether or not the edges of the liner are raised sufficiently to contain spills/runoff from the liner. Verification of this will be required in 2013.

Part F: Conditions Applying to Drilling Operations

Several items were noted with respect to drill operations. Selection of appropriate water bodies was already discussed above. Drill waste at drill 1493 was not directed to a sump, it was simply allowed to run down the side of the steep hill, through the vegetation and over the rocks. While there was no water body nearby or below the runoff, it was nonetheless a careless setup.

Fuel, chemical, and salt storage was noted as deficient at both drill locations. At drill 1493, there were hard containment pallets leaning upright, unused, while the majority of the fuel and the salt bags were placed directly on the ground, with no containment. The fuel drums were balanced on timbers, which sloped downhill towards a steep slope.

- All fuel transfers (including filling of small tanks) are to occur over secondary containment.
- Fuel barrels are to be stored in secondary containment.
- Hoses and nozzles are to be kept over drip pans or trays.
- Salts, drilling lubricants and greases are to be kept on adequate secondary containment in case of spills. Salt spills, like brine spills, burn the vegetation and can impact water and soil quality.

A review of the 2011 Annual Report reveals potential inconsistency in application of water sampling and monitoring program: in some cases only one sample was taken or recorded. There is potential inaccuracy in recording of the locations – for example, HEN448 “before and after photos” show the samples taken in approximately the same location and within sight of the drill; however, the coordinates provided show the samples were actually taken nearly 500m from the drill location.

As well, it is noted that there is no mention or record of permafrost depths as required under item 7 of this Part.

Part G: Conditions Applying to Modifications

No modifications to water supply and waste disposal facilities were noted at the time of the inspection.

Part H: Conditions Applying to Spill Contingency Planning

Spill kits were noted at both drills and at the FTS. No spill kit was noted at the fuel cache at Hood. The Hood helicopter refueling area had no secondary containment and the fuel barrel in use was left open with the pump on it. A barrel in the Hood fuel cache (bermed) was found to be leaking, and was placed upright until it could be used.

An inspection of Spill 12-191 was conducted, and it was found that some contaminated materials still remained. A follow-up report will be required before that spill can be re-inspected and closed. Spill 12-242 was not inspected at this time; the Inspector will seek to close this spill file during the next summer inspection.



Chemical and battery storage at the camp was good – chemicals and batteries were stored in appropriate cabinets or containment. Note that oils and lubes in the workshop require containment.

MMG has regularly updated the Spill Contingency Plan, and submitted the revisions to the Board.

Part I: Conditions Applying to Abandonment and Restoration or Temporary Closing

At the time of the inspection, MMG had begun to dismantle Hood/Amooga Booga Camp. This is an important element of progressive reclamation. While the 2011 annual report describes the work as “dismantled and removed”, it was noted at the site that burning of the structures was used as a means of disposal, contrary to Part D (2) of the licence.

With respect to progressive reclamation, the licence requires, as part of the annual report “a description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations...”. Inclusion of more detailed information in the next annual report is required as discussed above.

While overflying Izok Lake from Izok Camp to the drill site, it was noted that there were numerous drill casings sticking out. Removal of drill casings is a requirement of the licence under this part, item 11.

It appears in the photos taken on July 3rd that some core racks at Hood may fall within 30m of the high water mark of the adjacent water body, contrary to Item 12 of this Part. These should be set back a minimum of 30m from the high water mark.

An administrative review shows that the A&R plan on file (2008) describes burning of structures as the predominant method of disposal, which is contrary to the licence. A review of the A&R plan submitted for the licence renewal has not yet been conducted.

Part J: Conditions Applying to the Monitoring Program

A review of the 2010 and 2011 annual reports revealed the following:

Item 1 requires that the licensee measure and record all daily water uses. In the 2010 annual report, section 2 describes water use. It states that the average daily consumption of the camp is 750 gallons (around 2,840 L), and that the drill would consume approximately 25m³ per day (25,000L) however the water logs provided only record an average use of 1800 L (presumably camp use, but it is not specified). No clarification is given on how many days that drills were active, from which one could estimate total usage, as accurate logs were not provided. Similarly, the 2011 annual report fails to accurately reflect and report water consumption. Section 2 describes water use and states that the average daily consumption of the camp is 750 gallons (around 2,840 L) and that the two drills would consume approximately 25m³ per day each (50,000 L). However, only camp use is reported, monthly and in liters, and appears to be inaccurate. These totals show that only 187 L were used in camp in the month of July.

The licence clearly states that water will be recorded DAILY, FOR ALL PURPOSES, which includes drilling, and that usage is to be reported in cubic meters. As such, accurate daily usage records, in cubic meters, are to be submitted immediately to the Inspector, as required by the licence for both the 2010 and 2011 reporting periods. This is to include the pump capacities on each drill used (both hourly and 24-hr consumption rates), along with the number of drill days.

In 2012, MMG installed meters on the drills, with meter readings taken at the beginning and end of each shift. Daily water usage logs were maintained for all water uses, and were provided at the request of the Inspector for the purposes of this inspection. The actual water usage recorded in 2012 per drill is considerably higher than the estimated usage in 2010 and 2011. Average consumption on days where both drills were running is 133 m³; quite a difference from the estimated 50 m³ per day provided, and exceeds the licensed allowance. MMG is to maintain the practice of metering the water use at the drills year-round in order to accurately reflect their water usage.

Item 2 requires that the licensee provide the GPS coordinates (in Lat/Long dd°mm’ss.s”) of locations where sources of water are utilized. While MMG reported in 2010 and 2011 the drill locations and the sump locations (as per item 3), the water source location is not given. This is to be recorded and submitted in subsequent annual reports.



Non-Compliance:

Issues where there is a known or suspected violation of a requirement of the Water license or Act:

Part B (2). Failure to submit annual reports annually and by the March 31st submission deadline.

Part C (1). Water usage exceeds 100 m³/day.

Part D (2). Open burning of structures contrary to licence.

Part D (3). Burning of unacceptable materials in an incinerator.

Part F (2). Failure to direct drill waste to a sump.

Part I (AR) (11). Failure to remove drill casings as a component of progressive reclamation.

Part I (Monitoring) (1). Failure to adequately measure and record water use.

Part I (Monitoring) (2). Failure to record all locations where sources of water are utilized (drill operations).

Summary of Action Required:

- Submission of 2008 and 2009 Annual Reports; amended submissions of 2010 and 2011 Annual Reports.
- Immediately submit water usage records from 2010 and 2011 to the Inspector.
- Progressive reclamation is to be documented and included in Annual Reports.
- Water usage shall not exceed licensed amount. Renewal application is to be amended to reflect realistic water consumption, or drills are to be set up with recirculation to avoid water overages (or another water reduction method satisfactory to the Inspector).
- Water usage reporting shall show all uses of water, recorded daily, and be reported in cubic meters.
- Open burning is not an acceptable method of disposal and is to be discontinued.
- Waste sorting practices are to be implemented prior to incineration.
- Incinerator Management Plan or Operations and Maintenance Manual is to be submitted with the 2012 Annual Report.
- Proof of FINAL DISPOSAL of hazardous waste to be made available to the Inspector upon request.
- All fuel transfers (including filling of small tanks) are to occur over secondary containment.
- Spill kits to be located at all fuel transfer areas.
- Fuel barrels are to be stored in secondary containment.
- Hoses and nozzles are to be kept over drip pans or trays.
- Salts and drill greases are to be kept on adequate secondary containment in case of spills.
- Consistency in application of water sampling before and after on-ice drilling.
- Record and report permafrost depths.
- Removal/capping of drill casings as part of progressive reclamation.
- Metering the water use at the drills year-round in order to accurately reflect water usage.
- Provide the GPS coordinates (in Lat/Long dd°mm'ss.s") of ALL locations where sources of water are utilized (including drill sources).
- Exercise caution when selecting water sources to avoid use of shallow water bodies.

Failure to undertake the actions required as described in this inspection report, and to the satisfaction of the Inspector, may result in enforcement action(s) being undertaken pursuant to the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*.

General Comments:

I would recommend that MMG review all regulatory obligations, administrative and operational, under the new licence, and discuss with the Board and the Inspector how to ensure compliance with the terms and conditions.

Eva Paul

Inspector's Name

Inspector's Signature

Cc: Phyllis Beaulieu – Manager of Licensing – Nunavut Water Board