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Submitted Via E-Mail  
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**RE: Water License Inspection of Mars Society Project August 2nd, 2007**

The Water Resources Officer (WRO) appreciates the assistance and cooperation provided by Mr. James Harris – Chief Engineer and Mr. Matt Bamsey, Project Technician for the Mars Society Project who both accompanied the Inspector during the Water License Inspection.

The following report is based on observations made at the time of the inspection at the Flashline Mars Arctic Research Station (FMARS) site, results of samples collected during the inspection and items outlined during a review of the terms and conditions of the license with Mr. Harris and Mr. Bamsey. Immediately following the inspection an Industrial Water Use Inspection Report outlining any concerns was signed by both Mr. Harris and the Inspector.

**Part A: Scope and Conditions**

No issues were found with respect to the location of the camp as it relates to the information contained within the current license.

**Part B: General Conditions**

The issue of water use fees and security were not included within the context of this inspection.

A review of the Nunavut Water Board FTP – Public Registry was conducted during the writing of this report. It is noted that the current water license was issued by the Nunavut Water Board on the 27<sup>th</sup> of April 2007 and is a renewal of a license which expired on December 31<sup>st</sup> 2005.

As this is the first year for this License and no activities were conducted in 2006 there were no annual reports filed for that year. The proponent is reminded that an annual report is required to be filed by March 31<sup>st</sup> 2008 for the year ending December 31<sup>st</sup> 2007. The annual report must include but should not be limited to those items listed in Section 2 i through vi of this Part. Failure to file a complete report as outlined in the license is a violation of the Act and will subject the licensee to the enforcement measures and penalties provided for under the Act.

The licensee is reminded that it is the responsibility of the licensee to ensure that any documentation submitted by the licensee to the Nunavut Water Board is acknowledged by the Manager of Licensing.

Additionally, the Licensee is reminded that as per section 3 of this part the Licensee is required to notify the Nunavut Water Board of any changes in operating plans or conditions no later than 30 days prior to their implementation.



### **Part C: Conditions Applying to Water Use**

At the time of the inspection the Licensee was allocated the use of 1 Cubic Meter per day of water from Lowell Creek (as stated in the application and supplementary questionnaire) for domestic and all other purposes. It was noted that there were no meters installed on the intake pump for accurately recording volumes of water used by the licensee. This must be addressed by the next inspection.

The Inspector is concerned however that during the period of Inspection the Licensee had changed or modified their operation and was collecting water from a small body of water (Lake Cornell) located at the base of the Houghton Crater.

This change requires the support staff to drive (via four wheeler) with trailers and large pails though the crater to and from the new source. This has resulted in a new trail being created within the crater.

During the period of the Inspection the Inspector provided a verbal direction to the Licensee, which was recorded in the Industrial Water Use Inspection Form, to submit an application for amendment/Modification to the Nunavut Water Board to address this change in Operations under the current license. A review of the Nunavut Water Board FTP site conducted during the writing of this report was not able to locate the required request from the Licensee.

The licensee is cautioned that further instances of non-compliance with an issued direction from an Inspector will be viewed as a violation of the Act and will subject the licensee to the enforcement measures and penalties provided for under the Act.

The licensee is reminded that it is the responsibility of the licensee to ensure that any documentation submitted by the licensee to the Nunavut Water Board is acknowledged by the Manager of Licensing.

### **Part D: Conditions Applying to Waste Disposal**

During the period of Inspection it was noted that the Licensee did not have an incinerator in camp and was instead burning garbage including human wastes and food wastes in a 45 gallon drum.

The Licensee is reminded that section 2 of this Part reads as follows;

2. No open burning or on-site land filling of domestic waste is permitted.

During the period of Inspection the Inspector provided the Licensee with a verbal direction to cease this activity. This direction was documented in the Industrial Water Use Inspection Form which was signed by the Licensee at the conclusion of the Inspection. The Licensee is required to incinerate or remove all domestic and other wastes generated by the project.

The Licensee is reminded to ensure that the capability of any incinerator unit installed on site meets the Canada-wide Standards for Dioxins and Furans and the Canada-wide Standard for Mercury Emissions.

The proponent was directed during the inspection period to include in the 2007 annual report due on March 31<sup>st</sup>, 2008 a list of any hazardous materials shipped out of the camp, the treatment received, and the location of the approved treatment facility to which they were sent. Shipping and receiving invoices are not required so long as the records are available for inspection during the 2008 inspection season.

During the period of inspection the Inspector noted the Licensee had not constructed a camp sump but was instead pouring grey water and other wastes over the lip of the crater and down slope into a boulder field. The licensee was directed to cease this activity during the inspection period and to address the issue of a sump by the period of the next inspection.

The Licensee is reminded that section 4 of this Part reads as follows;



4. Unless otherwise approved by the Board, the Licensee shall contain all greywater in a sump located at a distance of at least thirty (30) metres from the high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created.

The licensee is cautioned that further instances of non-compliance with the terms and conditions of the issued water license will be viewed as a violation of the Act and will subject the licensee to the enforcement measures and penalties provided for under the Act.

#### **Part E: Conditions For Camps, Access Infrastructures And Operations**

No issues with this section of the license were noted during the period of inspection. The camp is used during the short summer months only.

#### **Part F: Conditions Applying to Modifications**

No modifications were brought to the attention of the inspector during the period of inspection by the Licensee.

A search of the Nunavut Water Board FTP site did not locate the required request for Amendment/Modification as directed during the period of Inspection.

#### **Part H: Conditions Applying To Spill Contingency Planning**

It was noted during the Inspection on August 2<sup>nd</sup> 2007, a Spill Contingency Plan was not available for review.

The Inspector at the time was able to determine that one had not been developed by the licensee. The Inspector then provided a verbal direction to the Licensee to provide a Spill Contingency Plan to the Inspector within 30 days of the Inspection. That Plan was due September 2<sup>nd</sup> 2007. A review of the Water Board FTP site was conducted during the writing of this report. A Spill Contingency Plan was not located on the site and one has not been submitted to the Inspector directly.

The licensee is cautioned that continued instances of non-compliance with the terms and conditions of the issued water license and Act will result in the licensee being the subject of the enforcement measures and penalties provided for under the Act.

The Licensee is reminded that **All spills** are to be documented and reported to the **24 hour Spill Line at (867) 920-8130**. Additionally a report for any spill is required to be filed with the Inspector (INAC) within 30 days of the incident.

The licensee is reminded that it is the responsibility of the licensee to ensure that any documentation submitted by the licensee to the Nunavut Water Board is acknowledged by the Manager of Licensing.

The proponent is reminded that secondary containment for fuel storage is required as it prevents uncontrolled and accidental discharges to water and the environment. This includes fuel stored at the camp and at all other locations. It was noted during the period of inspection that there was very little secondary containment anywhere within the camp. This must be addressed by the 2008 Inspection season.

The licensee is reminded that section 4 of this part requires the licensee to ensure that any equipment maintenance and servicing be conducted only in designated areas and to implement special procedures to prevent spills of these products from entering the environment.



**Part I: Conditions Applying To Abandonment And Restoration**

The Licensee is cautioned that while a prepared plan is not required at this time the Licensee should have in place methods and practices that will ensure the site can be reclaimed to its original condition upon completion of the program.

A formalized plan may be required in the future

**Part J: Conditions Applying To The Monitoring Program**

The Licensee is reminded to include in the 2007 Annual Report under the heading Monitoring Plan, due for submission to the Nunavut Water Board no later than March 31<sup>st</sup> 2008, the following information;

- Volumetric summary of water use for all purposes for the 2007 year
- GPS coordinates for all water sources
- GPS coordinates for all locations where waste was deposited

While no additional sampling was imposed by the inspector during the inspection period it is highly recommended that all potable sources be sampled annually by the licensee to address any human health and safety concerns.

The licensee is reminded that it is the responsibility of the licensee to ensure that any documentation submitted by the licensee to the Nunavut Water Board is acknowledged by the Manager of Licensing.

**Non-Compliance:**

During the inspection a number of items were noted and discussed with Mr. Harris. Some of these issues required corrective action to be undertaken prior to the date of the next inspection and one required the submission of a plan within 30 days.

Specifically these were;

- Fuel storage (barrels) without secondary containment
- Metering equipment is not installed on pump intake.
- Shipping off-site of bulk and hazardous waste – Transportation records.
- Creation of a camp sump
- Open Burning- Installation of an incinerator.
- Submission of a Spill Contingency Plan.

During the period of the inspection water samples were collected from the potable source.

Andrew Keim  
Inspector's Name

Original signed and mailed this date  
Inspector's Signature

Attached under separate cover;  
Photos taken during Inspection of June 27<sup>th</sup>, 2007

Cc:

Peter Kusugak – Manager Field Operations Section- Indian and Northern Affairs Canada  
Phyllis Beaulieu – Manager licensing – Nunavut Water Board













