

**Transport Canada  
LTU Annual Report 2008  
Iqaluit Airport, Nunavut  
Water License No. 1BR-LTU0608**

**To:**

**Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, Nunavut  
X0B 1J0**

**March 2009**

## **Introduction**

Transport Canada (TC) received a water license from the Nunavut Water Board to operate a landfarm in order to treat petroleum hydrocarbon (PHC) contaminated soil at the Iqaluit airport. The water license No. 1BR-LTU0608 was issued on August 21, 2006 that outlines the terms and conditions for the operations and maintenance of the facility. TC anticipated constructing one large LTU cell on site, however the topographic conditions and airport operations made this difficult due to restriction related to the runway, adjacent taxiway and apron. Therefore, TC constructed two smaller LTU cells (C & D) adjacent to the previously constructed LTU cells (A & B) that will be decommissioned in the near future (see site plan drawing). The following report will outline the activities for the LTU as described in Part B Item 2 in the water license.

## **History**

Prior to July 1, 1995 Iqaluit Airport was owned by the Government of Canada and operated by the Quebec Region of the Department of Transport. From July 1, 1995 until April 1, 1999 the airport was owned by the Government of Northwest Territories and operated by the Arctic Airports Division of the Department of Transportation. Since April 1, 1999 the airport has been owned by the Government of Nunavut and operated by the Nunavut Airports Division of the Nunavut Department of Community Government, Housing and Transportation.

As a condition of the Arctic A Airport transfer agreement (July 1995) between GNWT and Transport Canada, the environmental issues, which existed prior to the airport transfer, are to be remediated as well as any items identified by the GN within six years of the transfer date. Works identified under this document address some of the issues identified in the transfer agreement as well as post transfer issues. Types of PHC contaminated soils encountered for disposal in the LTU are gasoline, diesel, and jet fuel (A,B) which are the main sources of fuel spills and leaks over the past 60 years at this location. The depth of contaminated soil in the LTU will not be greater than 1m and will be constructed based on the parameters outlined in the water licence application (also see attached engineered drawing).

Transport Canada is obligated to remediate all hazardous substances that are the department's responsibility that do not comply with the applicable environmental laws.

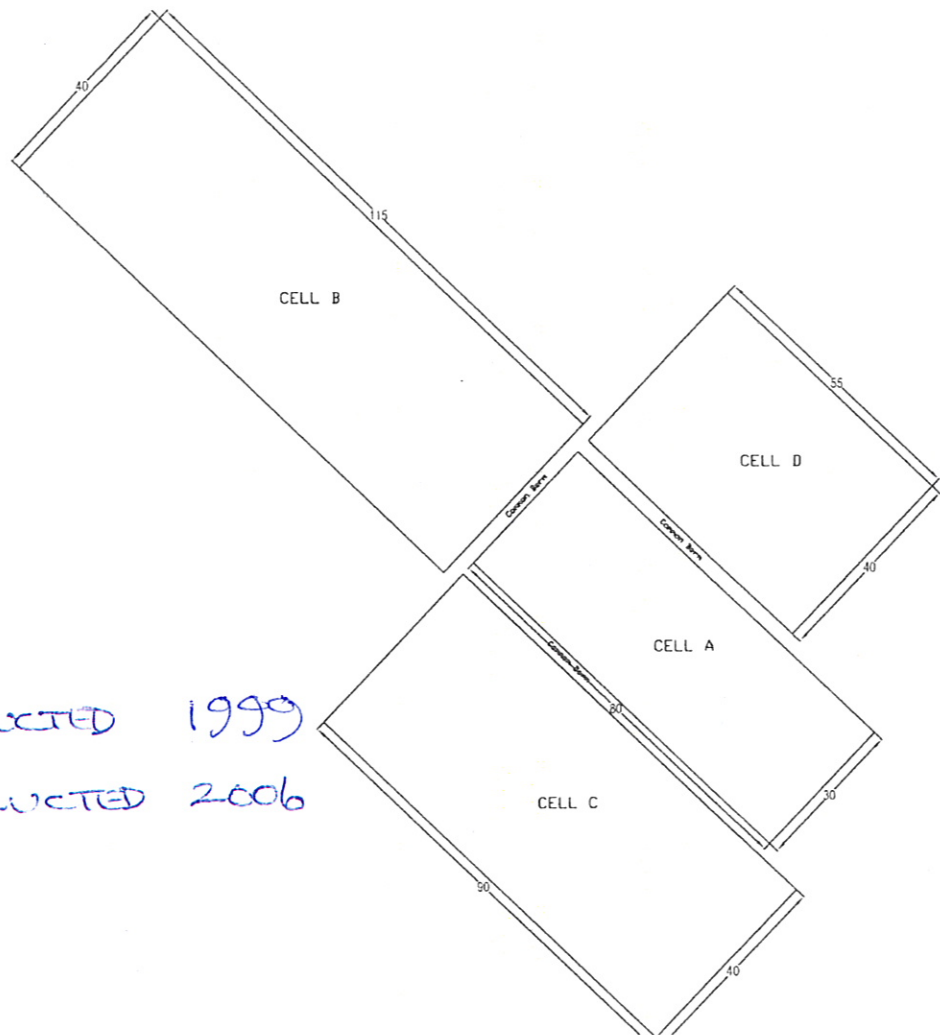
## **Part B Item 2**

- i. The Iqaluit Airport under the assisted of TC remediated the First Air Cargo building between November – December 2008. First Air proposed to retrofit the building with a heated floor. From the Phase I & II investigations it was determined contaminated soils existed with a potential volume of greater than 2000m<sup>3</sup>. The First Air Cargo building is one of the oldest buildings still standing in the city of Iqaluit. It has been used for many different purposes from the original air terminal building to maintenance shops and is currently used as cold storage. First Air reported a total of 1220 m<sup>3</sup> of contaminated soils were removed from the location and sent to the TC LTU Cell “C”.
- ii. No discharges to report;
- iii. There is no storage of any petroleum hydrocarbons at this site. The only concern for the Spill Contingency Plan is for heavy equipment working at the site for delivering contaminated soil to the facility or equipment used during tilling/fertilizing and maintaining the site. Heavy equipment operators are required to have their equipment properly maintained without any leaks. Operators are required to have a small spill kit with them at all times while on site. Operators are also required to have a spill plan containing contacts and procedures for emergencies such as hospitals, fire department, police and territorial governmental department environmental spills;
- iv. No additional works completed. See attachments for photos, site plan, engineered drawing;
- v. TC applied fertilizer to LTU Cells “C” and “D” to assist with the bio-degradation of PHC impacted soil (please see EMT report attached). The contractor noted a strong PHC smell while applying the fertilizer. The contaminated soil was placed in the facilities in cell “C” and “D” in 2007 an 2008 an has not had sufficient time to degrade. TC will conduct soil/monitoring well sampling in the summer of 2009 followed by tilling the soil an applying fertilizer if required as illustrated in the water license requirements an the O & M Plan.
- vi. No additional details, no water use at this site





# IGALUIT, AIRPORT LTU



CELL A & B CONSTRUCTED 1999

CELL C & D CONSTRUCTED 2006



Kanata, June 9, 2008

Mr. John Graham  
Dir., Iqaluit International Airport Division,  
Iqaluit Airport  
P.O. Box 1000, Station 720  
Iqaluit, NU X0A 0H0  
Canada

Via email: [jgraham@gov.nu.ca](mailto:jgraham@gov.nu.ca)  
Original Mailed.

Re: Excavated Soil Disbursement

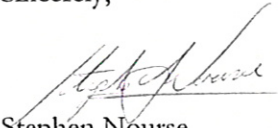
Dear Mr. Graham: *John*

As you are aware it is First Air's intention to undergo a major renovation to our Iqaluit Cargo Building this summer including the installation of a new heated concrete floor. Installation of the new floor will require the removal of the existing asphalt floor and about a one half meter excavation to provide space for the new insulation, support structure, and the actual floor. This will result in about 1,200 cu meters of removed granular material that has to be disposed of. Investigation shows that varying amounts of hydrocarbon contamination impact this material.

This contamination is not related to our occupancy of the facility but rather is either the result of previous tenancy or the result of migration from other airport locations. As such the proper disposal of the removed material is not First Air's responsibility.

Copies of the Phase I and Phase II environmental reports done by WESA (Water and Earth Science Associates) identifying the contamination were previously supplied to you. We ask you review these reports and advise us of your plans to properly receive the material when it is excavated this summer.

Sincerely,

  
Stephen Nourse  
Dir. Planning & Projects

c.c. Michael Molinski, Transport Canada

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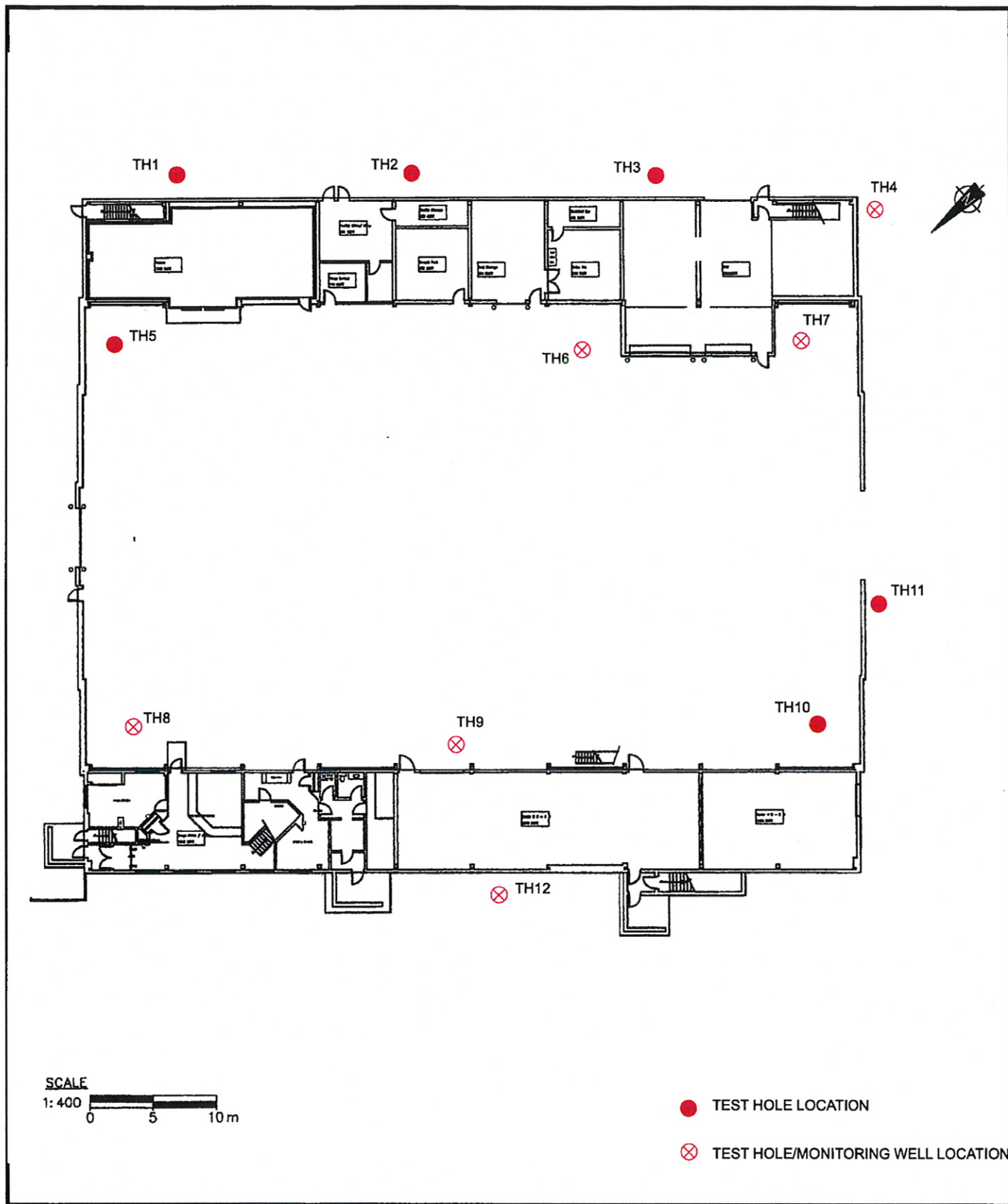
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FIGURE: 1  
**SITE LOCATION MAP**  
FIRST AIR OFFICE BUILDING AND CARGO HANGAR - IQALUIT, NUNAVUT





**FIGURE 2:**  
**TEST HOLE AND MONITORING WELL LOCATIONS**  
 First Air Office Building and Cargo Hangar - Iqaluit, Nunavut

MAP REFERENCE:  
 AMEC, 2005

B5940-WL























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**ENVIRONMENTAL MANAGEMENT TECHNOLOGIES**

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July 2008

William Ferguson Regional Manager  
Transport Canada  
Environmental Affairs  
Programs, Prairie & Northern Region  
344 Edmonton Street, 3<sup>rd</sup> Floor  
P.O. Box 8550  
Winnipeg, MB R3C 0P6

**Re: Fertilizing Two LTUs**  
**Iqaluit Airport, Iqaluit, Nunavut Territory**  
**File No.: E1001-077-08**

### **1.0 Scope of Work and Site Description**

Environmental Management Technologies (EMT) was retained by Transport Canada to fertilize the two new 50m x 50m new LTU cells. The LTU site was located on airport property and it consists of two geo-membrane lined 50m x 50m hydrocarbon treatment cells. The cells contains approximately a meter deep of contaminated soil located in the south half of the cells, and are surrounded by a 1.5 m. high berm (berm height is relative to grade). The cells contain soil that consists of coarse-grained granular material. The current report provides the details encompassing the site activities completed by EMT site personnel July 2008.

The scope of work consisted of:

1. Incorporating high nitrogen fertilizer (40-0-0) into the hydrocarbon impacted soil to enhance bioremediation of these soils.
2. Submitting an environmental report outlining site activities and recommendations based upon field observations of the LTU.

### **2.0 Description of LTU Site Works**

The petroleum hydrocarbon impacted soil contained in the treatment cells were placed there in 2006 and 2007 seasons from various airport locations.

Approximately 150kg of high nitrogen fertilizer [40-0-0 (N:P:K)] was surface spread on the LTU soil in each cell to encourage bioremediation. The fertilizer was spread evenly to allow the product to be dissolved by the rain, which allowed the fertilizer to leach

into the granular soil. The fertilizer leachate will promote bio-degradation of the subsurface hydrocarbons present at the site.

### 3.0 Conclusions and Recommendations

The contractor has noted the smell of hydrocarbons being present during the fertilizing phase in both cells. It is possible that the concentration of petroleum hydrocarbons in the soil may exceed the applicable remediation criteria. The contractor recommends that TC should conduct a sampling program comprehensive enough to determine the concentration of hydrocarbons in these LTUs. Subject to the findings of a sampling program (laboratory analysis) showing hydrocarbon contaminated soil exceeding applicable criteria, TC could develop an Environmental Remediation Action Plan (ERAP). This plan would detail how the remaining soil could be treated allowing the LTUs to be decommissioned or additional contaminated soil to be brought to be remediated.

The contractor conducted a walk around the perimeter and noted no deterioration of the LTU berm liner where it is exposed to the elements. The liner used on the berms is a reinforced polyethylene liner which is meant for short term use. Transport Canada could reduce or eliminate any risk posed to the environment by the LTU, by creating and implementing an aggressive ERAP.

The contractor applied fertilizer at a slightly lighter rate than what is usually done for hydrocarbon impacted soil of the nature present in the LTUs. The contractor recommends that a soil sampling program be conducted to allow for an appropriate fertilizing program to be developed. The fertilizer already spread will allow for the reduction of hydrocarbons, however the appropriate amount of fertilizer would optimize bio-degradation.


### 4.0 Closure

The conclusions and recommendations presented in this report were based on the scope of work outlined for the purpose of the project, and were prepared in accordance with accepted environmental science principles and practices. However, as with any Environmental Site project, the intent is to restore the impacted site to acceptable limits, and not to eliminate potential environmental concerns that were beyond the scope of work.

The actions conducted and observations made at the site do not apply to areas that could not be observed or were beyond the scope of work. In addition, other materials or compounds not investigated or addressed, or beyond the scope of work could be present at the site. If other chemical parameters are identified as an environmental concern, EMT must be notified to assess whether modification to any part of this report should be

conducted. If you have any questions or concerns regarding the findings, conclusions or recommendations presented herein, please contact the undersigned.

Prepared by:



Dennis Antony, B.Sc., R.R.D.

Project Manager

EMT