

WATER USE INSPECTION FORM

Date: July 20 & 21 ,2011	Licensee Rep. (Name/Title): Commanding Officer Alert Major Denis Letallier , Drew Craig - 8 Wing Environmental Officer , Andrew Tam – Asst. Environmental Officer
Licensee: Department of National Defence	Licence No.: 3BC- ALT1015

WATER SUPPLY

Source(s): Dumbell Lake	Quantity used: 17,400 L/Day - estimated only
Owner:/Operator: National Defence	

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected

Intake Facilities: A	Storage Structure: A	Treatment System: A	Chemical Storage: A
Flow Meas. Device: U	Conveyance Lines: A	Pumping Stations: A	Screen: NI

Comments: During the Inspection of the Water Treatment Plant and Pumping Station the Inspector noted the following;

- All required records for the Chlorine Testing and Biological sampling were on site and available for review
- Chlorine mixing station was found in good order with safety gear present
- Piping for the water in-take had been changed to prevent the return of Chlorinated water to Dumbell Lake- This is a modification to the system on file and should be submitted to the NWB in the next Annual Report
- Holding tanks had been cleaned and records were noted on the tanks
- New water treatment equipment including a redundant UV lighting system has been installed on station. This equipment has not yet been commissioned however it is unclear if this work and installation was approved as a modification to the Operations of the facility license by the Nunavut Water Board
- No meters have been installed but they are scheduled to be installed by September of this year

WASTE DISPOSAL

Sewage: Sewage Treatment System (Prim./Sec/Ter.): Solids Removal

Natural Water Body: No	Continuous Discharge (land or water): Yes – Land	
Seasonal Discharge: NA	Wetlands Treatment: unknown	Trench: None

Indicate: A - Acceptable U - Unacceptable NA - Not Applicable NI - Not Inspected

Discharge Quality: U	Decant Structure: U	Erosion: U
Discharge Meas. Device: U	Dyke Inspection: U	Seepages: U
Dams, Dykes: U	Freeboard: NA	Spills: U
Construction: U	O&M Plan: U	A&R Plan: U
Periods of Discharge: Cont.	Effluent Discharge Rate: Unknown	

Comments: During the Inspection of the Waste Water Treatment Facility (Terrace Trap) the Inspector noted the following;

- The constructed facility appears to have failed to slow, retain or direct the majority of the wastes discharged at the outfall. Erosion and failure of the constructed diversion dykes on the hill side was found to have occurred at all but the lowest dyke installed in the facility
- Spring melt water combined with melting effluent ice blocks built up throughout the winter months at the new outfall location overtopped and washed out the majority of the constructed dykes
- Materials used on the construction of retention/ diversion dykes/ terraces were neither compacted nor protected by keyed in liner materials. The local materials used to construct the diversion dykes was found to have a very high proportion of fines (silt) within the matrix that washed out during the melt. These fines have now migrated down gradient into the ocean and across a large area at the bottom of the hill. Erosion channels have formed in the overburden /active layer and were found to have eroded the slope down to the level of the permafrost. These channels may threaten to decrease the stability of the hillside and localized slippage has already occurred in numerous places
- High slit loading was noted on the foreshore down hill from the new discharge location. This was not present prior to the construction of the new terraced facility
- Channelling and streams of effluent from the discharge now enter the arctic ocean away from the authorized discharge location at Parr Inlet
- Sampling results from the effluent discharge were not available for review at time of the Inspection as the sampling program had not been initiated at that point, however it was noted that a sampling program was being initiated and pending the arrival of equipment on site, would be carried out
- It was noted that the system, as installed, without a holding cell, without erosion control ie: keyed

in liners, without a screening system to prevent to discharge of food particles, toilet paper, raw sewage etc, does not appear to the Inspector to be providing treatment as outlined in the submitted Operations Manual

- A sludge management system to deal with raw effluent and other solids noted on the hill side was not available for review during the Inspection

**SOLID WASTE: Millionaires Dump** **Owner/Operator: Dept of National Defence**

<b>Landfill:</b> Y	<b>Burn &amp; Landfill:</b> N	<b>Other:</b> Incinerator
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**Comments:** During the Inspection of the Solid Waste Management Facility the Inspector noted the following;

- No Hazardous materials were currently on site. Shipping and receipt documents from a licensed facility were provided on site
- Waste metals were found to be crushed and buried in the Millionaires Dump
- Documentation on the certification of the incinerator to dispose of hazardous wastes was to be provided in the Operations Manual. No documents were available for review on site
- Records of all materials incinerated within the facility were available for review
- New signage was noted on site
- New sampling sites as outlined in the license were inspected and locations recorded with the Inspector for new signage to be installed
- No surface flow was found in any location. No samples could be collected

**FUEL STORAGE:** **Owner/Operator: Dept of National Defence**

Indicate: **A** - Acceptable **U** - Unacceptable **NA** - Not Applicable **NI** - Not Inspected

<b>Berms &amp; Liners:</b> NI	<b>Water within Berms:</b> U	<b>Evidence of Leaks:</b> NI
<b>Drainage Pipes:</b> NI	<b>Pump Station &amp; Catchment Berm:</b> NI	
<b>Pipeline Condition:</b> A	<b>Condition of Tanks:</b> A	

**Comments:** During the Inspection of the Airport Fuel Storage Tanks and Bio-Piles the inspector noted the following;

- Lead levels in water contained in the berm surrounding tanks 5A and 6A exceed the license guidelines. Licensee is currently waiting for metals filters to arrive for installation on pumping system
- The Berm surrounding Tanks 1A and 2A have water remaining from freshet that requires pumping as well.
- The Licensee has committed to reviewing previous sampling results and re-sampling sites down gradient from the Tank Farm over the remainder of the year.
- The Land Treatment facilities (Bio Piles) were found in order and well maintained.
- No confirmatory sampling was required at this location.

**Waste Oil Storage:** Not Inspected. A Waste Oil Furnace had recently been installed at the facility. The furnace was found on on-line and well maintained.

**SURVEILLANCE NETWORK PROGRAM (SNP)**

<b>Samples Collected</b>	<b>Owner /Operator:</b> Samples collected by Licensee to be submitted with annual report	
3	<b>INAC:</b> Potable water source, Effluent and duplicate	
<b>Signs Posted</b>	<b>SNP:</b> Locations found and signs to be posted	<b>Warning:</b> Installed
<b>Records &amp; Reporting:</b> Records and reporting requested during the inspection was provided on site		
<b>Geotechnical Inspection:</b> N/A		

**Non-Compliance of Act or Licence:** Overall the facility in Alert was found to have made great efforts to achieve compliance with the issued License and the Act. The Inspector noted a number of changes from the last visit that incorporated comments made by the inspector and were included in the terms of the license.

Once on site, the Inspector completed an inspection at the Terraced System – Effluent discharge area. During the Inspection a number of items were identified that were of great concern for the Inspector;

The Monitoring Program contained within the issued license has not been fully implemented as required to determine effluent treatment quality and compliance with the issued License.

Specifically items 4, 5 and 6 of **Part J: Conditions Applying to the Monitoring Program** have not been fully implemented as required by the license.

It is also of concern that, given the condition of the newly constructed infrastructure, that regular inspections have not been carried out as required by the License. The obvious sediment loading down gradient from the discharge, as well as the deviation of the discharge away from the last point of control at Parr Inlet are outside the terms of the license.

As such an **Inspectors Direction** will be issued to the Department of National Defense to immediately implement the outstanding sampling program requirements (Sewage Terrace Treatment Facility) for no less than either 30 days *or* for the remainder of the period of flow, whichever comes first. This is being ordered to determine what treatment is occurring within the system and if the system will allow National Defense to come into compliance with the listed Criteria.

Additionally, the Department of National Defense will be required to take such steps as required to mitigate the continued erosion and flow of sediment and raw effluent down gradient into the ocean.

<u>A.Keim</u>	<u>Sent by E-mail (Original signed and on file)</u>
Inspector's Name	Inspector's Signature

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