



North Mackenzie District
P.O. Box 2100
Inuvik, NT X0E 0T0

Telephone: 867-777-8900
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November 9, 2011

Northwest Territories Water Board
P.O. Box 2531
Inuvik, NT X0E 0T0

Attn: Freda Wilson, Office and Finance Administrator

**RE: Industrial Water Use N7L1-1788
CLASS B - INDUSTRIAL
Mackenzie River**

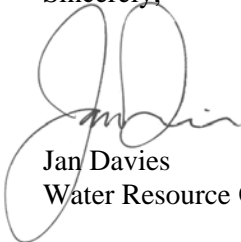
Dear Ms. Wilson,

Please find the enclosed Inspection Report for your review and records.

An electronic copy (un-editable Adobe pdf.) has also been provided by e-mail.

If you have any questions or concerns regarding the enclosed, and/or if additional information is required please contact me at (867) 777-8909.

Sincerely,



Jan Davies
Water Resource Officer

Cc: Conrad Baetz, District Manager, North Mackenzie District, Inuvik, NT

Enclosure: Industrial Water Use Inspection Report and Cover Letter (4 pages)



North Mackenzie District
P.O. Box 2100
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November 9, 2011

Suncor Energy Inc.
P.O. Box 2844
150 - 6th Avenue S.W.
Calgary, AB T2P 3E3

Attn: John Kerkhoven

**RE: Industrial Water Use N7L1-1788
CLASS B - INDUSTRIAL
Mackenzie River**

Dear Mr. Kerkhoven,

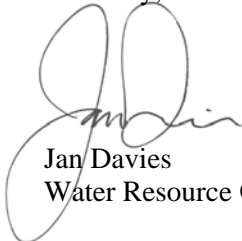
An inspection of the Suncor Energy Inc. Water Licence N7L1-1788 (expiry on November 30, 2002) was conducted on August 25, 2011. The operation under the above mentioned Industrial Water Use was inspected to assess compliance and ensure that the terms and conditions were met. Enclosed is a copy of the Inspection Report (3 pages) for your review and records.

Unfortunately, there were two violations during this inspection period. Our records indicate that the 2004-2007 Annual Reports and the 2005 Annual Sump Monitoring Report as required by the Water Licence have not been received by the Northwest Territories Water Board. Please review and address the violations and other concerns throughout the Inspection Report.

Please note that it is the Licensee's responsibility to ensure compliance with all of the terms and conditions of its Water Licence. A copy of this report will be sent to the Northwest Territories Water Board for their review and public records.

If you have any questions regarding the enclosed and/or if additional information is required, please do not hesitate to contact me at (867) 777-8909.

Sincerely,



Jan Davies
Water Resource Officer

Cc: Conrad Baetz, District Manager, North Mackenzie District, Inuvik, NT

Enclosure: Industrial Water Use Inspection Report (3 pages)



INDUSTRIAL WATER USE INSPECTION REPORT

| | | | |
|---------------------|--------------------|-----------------------------|--------------------|
| LICENCE #: | N7L1-1788 | EXPIRY DATE: | September 30, 2007 |
| LICENCEE: | Suncor Energy Inc. | PREVIOUS INSPECTION: | February 12, 2003 |
| COMPANY REP: | John Kerkhoven | INSPECTION DATE: | August 25, 2011 |

WATER SUPPLY

| | | | |
|-----------------|--------------------|----------------|-------------------------|
| Source: | Mackenzie River | Quantity Used: | N/A, See Annual Reports |
| Owner/Operator: | Suncor Energy Inc. | Meter Reading: | N/A |

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

| | | | | | | | |
|-------------------|-----|--------------------|-----|-------------------|-----|---------------|-----|
| Intake Facilities | N/A | Storage Structures | N/A | Treatment Systems | N/A | Recycling | N/A |
| Flow Meas. Device | N/A | Conveyance Lines | N/A | Pumping Stations | N/A | Chem. Storage | N/A |
| | | | | | | Modifications | N/A |

Water Supply Comments:

- N/A

WASTE DISPOSAL

| | | | | | | | | |
|--------------|----------------------|-----|------------------|----------------|--------------------|-----|-------------------|-----|
| Well Waste: | Off-Site Removal | N/A | Drilling Sump | A ¹ | Downhole | N/A | Land spread | N/A |
| Solid Waste: | Open Dump | N/A | Landfill | A | Burn & Bury | N/A | Under ground | N/A |
| | Owner / Operator | N/A | Sludge Disposal | N/A | Other | N/A | | |
| Tailings: | Tailings Pond | N/A | Natural Lake | N/A | Under ground | N/A | | |
| Sewage: | Sewage Treat. System | N/A | Camp Sump | N/A | Natural Water Body | N/A | Wetland Treatment | N/A |
| | Continuous Discharge | N/A | Inter. Discharge | N/A | Seasonal Discharge | N/A | Trench | N/A |

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

| | | | | | | | |
|----------------------|-----|----------------|-------------------------|-------------------|----------------|----------------|-----|
| Discharge Quality | N/A | Construction | N/A | Disch. Meas. Dev. | N/A | Freeboard | N/A |
| Decant Structures | N/A | O&M Plan | N/A | Dams, Dykes | N/A | Seepages | N/A |
| Dyke Inspections | N/A | A&R Plan | N/A | Erosion | A ¹ | Spills | A |
| Conveyance Lines | N/A | Pond Treatment | N/A | Runoff Diversion | N/A | Sump Treatment | N/A |
| Sump Liners | N/A | | SNP Samples Collected | | N/A | | |
| Periods of Discharge | N/A | | Effluent Discharge Rate | | N/A | | |

Waste Disposal Comments:

Concern:

1. Large surficial cracking present throughout both the drill and camp sump caps. This is a concern as the cracks are quite deep and might pose a stability or erosion risk in the future (see Figure 3).

Notes:

- Vegetation cover is ~60-70% but there is a lot of bare soil remaining with no vegetation cover (see Figure 4). Erosion of sump cap does not appear to be an issue on site as soil surface erosion was not observed. There does seem to be protection from the vegetation that is present and the type of soil on site.
- Site was clean and void of any garbage or solid waste.
- By observation the sump appears stable, no containment issues noted, the waste appears to be contained.
- Both the sumps are well drained and sloped to the sides.



INDUSTRIAL WATER USE INSPECTION REPORT

GENERAL CONDITIONS

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**

| | | | | | |
|-----------------------------|----------------|---------------------|--------------------|------------------|--------------------|
| Ore & Waste Rock Stockpiles | N/A | Records & Reporting | U ^{1,2,4} | Surv. Net. Prog. | N/A |
| Geotechnical Inspection | N/A | Posting, Signage | N/A | Contingency Plan | N/A |
| Restorations Activities | A ³ | New Construction | N/A | Fuel Storage | N/A |
| Mine Water Discharge | N/A | Chemical Storage | N/A | Annual Report | U ^{1,2,4} |

General Condition Comments:

Concerns:

1. The Annual Reports for 2004 - 2007 have not been received by the Northwest Territories Water Board and this is a violation of Part B: General Conditions, Item 1 of the Water Licence.

There needs to be notification of the Board of the activities that occurred during the entire term of the Water Licence. If nothing occurred there needs to be a letter for the Annual Report that complies with Part B: General Conditions, Item 1 and its conditions.

2. The 2003 and 2004 Annual Sump Monitoring Reports have been submitted. It appears that the 2005 Annual Sump Monitoring Report has not been received by the Northwest Territories Water Board but was required as part of the monitoring of the drilling waste sump after closure for a period of three years. This is a violation of Part H: Conditions Applying to Abandonment and Restoration, Item 2 of the Water Licence.

3. Slumping or subsidence of the sump cap is not occurring aside from ponding in specific areas by the drill and camp sump. There is a large pond to the west of the drill sump (see Figure 6). A small pond in the middle between the drill sump and the camp sump with drainage from the sumps on each end and out to the side (see Figure 5). These two areas are largely subsided but remain similar over time and might be associated with the presence of the sumps in combination with the local hydrology. The ponding is away from sump caps but there is still a possibility of influence on sump long term stability. This is a concern as it relates to a possible effect on permafrost and the subsequent containment of wastes. The presence of water ponding in close proximity to the sumps could manifest larger problems later on. Continued monitoring is recommended but the long term solution would be to give this matter the appropriate action such as reclaiming the subsided areas surrounding the sump caps by filling in the subsidence. This would aid in ensuring long term stability.

4. Another Sump Monitoring Report was provided in 2006 and the objective of that monitoring was to conduct sampling of the two ponded areas by the sumps to satisfy the requirements of the Board's letter dated June 19, 2006. It was stated in the cover letter for the report that based on the conclusions of the report and the sump cap was still intact and square, the Licensee did not believe the integrity of the sump had been compromised at that stage but did commit to monitoring for another year. Please note the results from the subsequent monitoring in the following 2007 year have not been provided.

Notes:

- The Annual Reports have been provided for 2002, 2003.

- The Annual Sump Monitoring Reports have been submitted for 2003 and 2004.

- Two site visits occurred previously. The August 23, 2010 site visit observed similar conditions to those noted above in that there was ponding on site and vegetation cover present but a lot of bare soil, the edges of the sumps appeared stable. There were very prevalent cracks and stress fractures throughout sumps - very large, very deep, a couple of inches wide and many inches deep (see Figure 3). Ponding on site was very deep, subsidence that ranged in depth from at least 0.5 to 1.0 meters in depth from the surrounding area. There was some surface sheen on the small pond in between the sumps, it was very small pockets and surrounded by a surface scum throughout but thought to be natural. During the July 27, 2007 site visit there was a white coloration present on the western edge of the drill sump bordering the larger pond (see Figure 1). The growth of vegetation was evident when compared to the current inspection (see Figure 2 and 4).

- Wellhead removed and surrounding area acceptable.

NON-COMPLIANCE/VIOLATIONS OF ACT OR LICENCE

Part B: General Conditions, Item 1,


"The Licensee shall file an Annual Report with the Board and an Inspector not later than March 31st of the year following the calendar year reported..."

Part H: Conditions Applying to Abandonment and Restoration, Item 2,

"The Licensee shall monitor the drilling Waste sump after closure for a period of three (3) years during the thaw season consisting of the following measures:

- a) install subsurface monitoring systems designed to detect thawing of the drilling waste;
- b) monitor for salinity migration using electromagnetic induction; and
- c) conduct an annual inspection of the site during the thaw season, and submit a written report of the inspection, including photographs of the site, to the Board by October 1st of the year the inspection is conducted.

Inspector's Signature:





INDUSTRIAL WATER USE INSPECTION REPORT

Inspection Images:



Figure 1

White coloration present on the western edge of the drill sump bordering the larger pond, July 27, 2007.

Figure 2

Nuna I-30 drill and camp sumps with poor vegetation growth, July 27, 2007.



Figure 3

There were very prevalent cracks and stress fractures throughout sumps - very large, very deep, a couple of inches wide and many inches deep, August 23, 2010.

Figure 4

Facing west, the Nuna I-30 sumps appear to be stable with sufficient vegetation coverage ~60-70%. Subsidence and ponding visible in between the sumps and on the west side of the drill sump, August 25, 2011.



Figure 5

Small subsidence between the drilling and camp sumps with more vegetation coverage, August 25, 2011.

Figure 6

Larger pond on the west side of the drilling sump with increased vegetation coverage present, August 25, 2011.