June 1, 2016

GNWT - Department of Transportation
P.O. Box 2038
Inuvik, NT X0E 0T0

Attention: Dean Ahmet, Senior Program Manager

File Number: N7L1-1835
Type of Operation: CLASS A - INDUSTRIAL
Location: Inuvik Region

Dear Mr. Ahmet,

An inspection of the above noted operation was conducted on May 17, 2016 by Water Resource Officer Philippe Thibert-Leduc, jointly with Environment Canada and Climate Change Enforcement Officers. Enclosed is a copy of the Industrial Water Use Inspection Report.

Please note that a number of significant erosion and sediment control related concerns were observed at the time of the inspection. The attached Water Licence inspection report fully outlines these concerns. As the Licensee, it is your responsibility to prevent any unauthorized discharge of sediments into the environment.

A copy of this report will be sent to the Inuvialuit Water Board for their review and public records. If you have any questions, please contact me at 867-678-6676.

Sincerely,

Philippe Thibert-Leduc
Water Resource Officer
Environment and Natural Resources
Inuvik Region

Cc: Stephen Charlie – Superintendent, GNWT ENR Inuvik Region
Mardy Semmler – Executive Director, Inuvialuit Water Board
Bijaya Adhikari – Science and Regulatory Coordinator, Inuvialuit Water Board
Kevin C. McLeod – Director, Highways & Marine, GNWT DOT
Doug Saunders – Operations Manager, E. Gruben’s Transport Ltd

P.O. Box 2749, Inuvik, NT X0E 0T0
Fred Bailey – Vice President, Northwind Industries  
Donald Arey – Manager, Resource Management, GNWT Lands Inuvik Region  
Craig Broome – Operations Manager, ECCC Northern District
INDUSTRIAL WATER USE INSPECTION REPORT

Date: May 17, 2016  Licence #: N7L1-1835  Page No: 1

LICENCE #: N7L1-1835  EXPIRY DATE: December 11, 2023
LICENCEE: GNWT - Department of Transportation  PREVIOUS INSPECTION: May 5, 2016
COMPANY REP: Dean Ahmet, Senior Program Manager  INSPECTION DATE: May 17, 2016

GENERAL CONDITIONS/REPORTS/PLANS

<table>
<thead>
<tr>
<th>Indicate:</th>
<th>A - Acceptable</th>
<th>U - Unacceptable</th>
<th>N/A - Not Applicable</th>
<th>N/I - Not Inspected</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;R Plan</td>
<td>N/I</td>
<td>Records &amp; Reporting</td>
<td>N/I</td>
<td>Final Report</td>
</tr>
<tr>
<td>Geotechnical Inspection</td>
<td>N/I</td>
<td>Posting, Signage</td>
<td>N/I</td>
<td>Contingency Plan</td>
</tr>
<tr>
<td>Restorations Activities</td>
<td>U</td>
<td>Spills</td>
<td>A</td>
<td>O&amp;M Plan</td>
</tr>
<tr>
<td>Maintenance</td>
<td>U</td>
<td>Modifications</td>
<td>N/I</td>
<td>Annual Report</td>
</tr>
</tbody>
</table>

General Condition Comments:

- An aerial inspection of Water Licence N7L1-1835 was conducted by Water Resource Officer Philippe Thibert-Leduc and two Environment Canada and Climate Change Enforcement Officers on May 17, 2016. The inspection plan included Borrow Sources 174 and 312, and Crossings at Zed Creek, Hans Creek, Trail Valley Creek and KM 18. Part of the inspection’s purpose was to follow-up on direction given in the last Water Licence inspection report dated May 9, 2016, the May 2016 erosion and sediment control (ESC) work schedule shared with Environment and Natural Resources (ENR), and the Spring 2016 Sediment Control Recommendations Control Recommendations document which was prepared by Amec Foster Wheeler and commissioned by the Department of Transportation. The Sediment Control Recommendations report provided a series of site-specific ESC best management practices (BMPs) recommendations with photos and sketches at various sites where ESC concerns were recently reported.

- May 17, 2016 forecast was partly sunny with a high of 5.7°C and low of -2.9, with 0.2 mm of precipitation in the morning. Snow cover was nearly completely gone. Total precipitation this month was 1.9 mm as of the time of the inspection, and 8.2 mm as of the time of this inspection report was submitted.

- Borrow Source 174:
  - ESC BMPs, including silt fences, erosion matting and sandbags were reinforced southeast corner of the pit.
  - Additional silt fences and matting were implemented (see Figure 1) around the sediment path settlement.
  - Unclear whether the standing water was pumped out of the affected area as planned as there was still significant volumes of it around the southeast corner – however no flowing water/sediment was observed downslope. Standing water appears to be settling well (see Figure 2).

- Zed Creek:
  - Existing ESC BMPs, including silt fences, erosion matting and sandbags were reinforced and some additional BMPs were installed.
  - At the time of the inspection, a crew of 5 was in the process of removing road/embankment material from the creek ice with shovels and buckets, and disposing of it further away from the crossing (see Figure 3).

- Borrow Source 312:
  - Diversion berms at the southeast area of the pit appear to be effective at containing drainage water within the pit (see Figure 4). Sediments appear to be settling and no water was observed flowing outside of the pit, towards Hans Creek.
INDUSTRIAL WATER USE INSPECTION REPORT

- Hans Creek:
  - Existing ESC BMPs, including silt fences, erosion matting and sandbags were reinforced (see Figure 5).
  - Most of the ice at Hans Creek melted, so it is unclear whether sediments and materials on the ice was successfully removed beforehand as scheduled.

- Trail Valley Creek and Crossing 18:
  - Inspectors surveyed these fish bearing crossings for the first time this season. There were no ESC BMPs to inspect (see Figures 6 and 7). Both sites were not directly addressed in the direction given in the last Water Licence, nor was it covered in the May 2016 Sediment and Erosion Control Work Schedule prepared by the contractor and shared with ENR. However, the May 2016 report from Amec Foster Wheeler does put forward ESC recommendations specific to Trail Valley Creek and also provides general guidance as to how to address other sites such as Crossing 18.

Concerns and Recommendations:

- While reinforcing existing ESC BMPs, implementing additional ones and scraping off/removing gravel and dust on the ice where possible was positive development, there remains significant volumes of fine materials piled near major crossings which have not been addressed. There also remains significant surface area of bare soil exposed to the elements on the gradients at various crossings. The earthpiles and unarmoured embankments are prone to erosion from rainfall and windfall, and will likely lead to important discharges of sediments into receiving waters if left as is. There earthpiles should be removed or moved away from the crossings, otherwise they should be covered and contained.

- ESC measures should be implemented at Trail Valley Creek and Crossing 18 as both areas are prone to erosion and sedimentation of fish bearing crossings. As of the time of the inspection, there were significant volumes of materials observed at Trail Valley Creek crossing (see Figure 8).

- Results from samples collected at Zed Creek and Hans Creek on May 5, 2016, were tested for Total Suspended Solids and compared against Water Licence limits. Results came back within approved limits, however we noted significant increase from upstream to downstream of the crossings, which indicates that there are sediments discharging into the crossings in spite of the low precipitations levels around the time the samples were collected. Close monitoring of these areas will need to occur throughout the summer season and particularly following major rainfall events.

- Generally along the ITH, the current focus is on sediment control as opposed to erosion prevention. Based on past inspections along the ITH it appears unlikely that the current sediment control BMPs will remain effective overtime. There exists evidence of this in some areas such as Hans Creek (see Figures 9 and 10), where silt fences are failing to due to the large volumes of sediments migrating downslope.

- Recommend further following and implementing the May 2016 report from Amec Foster Wheeler and the Season 3 ITH ESC Monitoring Plan, and adapting the Sedimentation and Erosion Control Plan as needed throughout the summer, based on SNP sampling results, weather forecast and inspection reports.

Inspector’s Signature: _______________________________
INSPECTION IMAGES

**Figure 1**
Borrow Source 174: Erosion and sediment control best management practices between southwest and southeast corners.

![Image of erosion control measures between southwest and southeast corners.](image)

**Figure 2**
Borrow Source 174: Standing water, ESC BMPs from Figure 1 on the left.

![Image of standing water with erosion control measures.](image)
Figure 3
Zed Creek: Gravel being scraped off the ice.

Figure 4
Borrow Source 312: Drainage channel and settling pond at southeast area of pit. Looking at south towards Hans Creek.
Figure 5
Hans Creek: ESC BMPs reinforced. View on southwest gradient with Hans Creek ahead.

Figure 6
Trail Valley Creek: No ESC BMPs to inspect, however important erosion and sedimentation potential.
INDUSTRIAL WATER USE INSPECTION REPORT

Figure 7
Crossing 18: No ESC BMPs to inspect other than rip rap, however important of erosion and sedimentation potential.

Figure 8
Trail Valley Creek: Earthpiles.
Figure 9
Hans Creek: Silt fences failing.

Figure 10
Hans Creek: Silt fences failing.