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January 18, 2017

GNWT - Department of Transportation
PO Box 2038
Inuvik, NT X0E 0T0

Attention: Dean Ahmet, Senior Program Manager

File Number N7L1-1835
Type of Operation TYPE A - INDUSTRIAL

Dear Mr. Ahmet,

An inspection of the Department of Transportation Water Licence N7L1-1835 (expiry on December 11, 2023) was conducted on November 25, 2016. Enclosed is a copy of the inspection report (8 pages) for your review and records.

Please take note of the environmental concerns observed at the time of the inspection and the request for further information.

A copy of this report will be sent to the Inuvialuit Water Board for their review and public records. If you have any questions/concerns regarding the enclosed, please do not hesitate to contact me at (867) 678-6676.

Sincerely,

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

Cc: Norman Snowshoe – Acting Superintendent, GNWT ENR Inuvik Region
Martin Callaghan – Acting 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
Fred Bailey – Vice President, Northwind Industries
Alexis Campbell – Environmental Analyst, DOT



INDUSTRIAL WATER USE INSPECTION REPORT

| | | | |
|---------------------|--|-----------------------------|--------------------------|
| LICENCE #: | N7L1-1835 | EXPIRY DATE: | December 11, 2023 |
| LICENCEE: | GNWT - Department of Transportation | PREVIOUS INSPECTION: | August 31, 2016 |
| COMPANY REP: | Dean Ahmet, Senior Program Manager | INSPECTION DATE: | November 25, 2016 |

WATER SUPPLY

| | | | |
|-----------------|-----------------------------------|----------------|-----|
| Source: | KP61 | Quantity Used: | N/A |
| Owner/Operator: | GNWT Department of Transportation | 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 |
| Water Delivery Truck | N/A | Modifications | N/A | | | | |

Water Supply Comments:

- Approved Water Source K61 which is meant to be used for winter construction this year as indicated by the Licensee was not active at the time of the inspection (Figure 1) and did not have an access road. No concerns were identified with regards to water use at the site.

WASTE DISPOSAL - SOLID WASTE

| | | | | | | | |
|------------------|-----|----------------------|-----|-----------------|---|-------------|---|
| Disposal Method | | Landfill/Incinerator | | | | | |
| Open Dump | N | Landfill | Y | Burn & Landfill | Y | Underground | N |
| Offsite Removal | N | Other | N/A | | | | |
| Owner / Operator | N/A | | | | | | |

Indicate: **A - Acceptable** **U - Unacceptable** **N/A - Not Applicable** **N/I - Not Inspected**
 Y - Yes **N - No**

| | | | |
|------------------|-----|-----------------------|-----|
| Runoff Diversion | N/A | SNP Samples Collected | N/A |
|------------------|-----|-----------------------|-----|

Solid Waste Comments:

- There were no solid wastes or debris present on sites.



INDUSTRIAL WATER USE INSPECTION REPORT

GENERAL CONDITIONS/REPORTS/PLANS

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

| | | | | | |
|-------------------------|-----|---------------------|-----|------------------|-----|
| C&R Plan | N/I | Records & Reporting | A | Final Report | N/I |
| Geotechnical Inspection | N/I | Posting, Signage | N/I | Contingency Plan | N/I |
| Restorations Activities | A | Spills | A | O&M Plan | N/I |
| Maintenance | A | Modifications | N/I | Annual Report | N/I |

General Condition Comments:

- On November 25, 2016, Water Resource Officer (Inspector) Philippe Thibert-Leduc and Environmental Protection Officer Rolland Malegana inspected the Inuvik to Tuktoyaktuk Highway to assess the Licensee's compliance with Water Licence N7L1-1835 (expiry December 11, 2023) and associated terms and conditions.
- Specifically, Trail Valley Creek crossing, Borrow Source 312, Water Source KP61, Hans Creek, Zed Creek, Bridge A3 and Bridge A2 were inspected.
- November 25, 2016 forecast was cloudy with light snow, and a high of -6°C and low of -30°C. Total precipitation for the region in the last 30 days was 16.4 mm.

Trail Valley Creek Crossing (23A) Observations:

- Large angular stone rock piles were observed in the streambed under a thin snow cover (Figure 2). There was no water flow at the time of the inspection and the ice crossing appeared to be stable (Figure 3), however the large rock piles identified at the site do not belong there and will have to be removed in full before the spring. Failure to do so will lead in a violation of the Water Licence as the rock piles will surely obstruct natural water flow of Trail Valley Creek come snow-melt.

Borrow Source 312 and Hans Creek Crossing Observations:

- At the time of the inspection, there was no activity on site at Borrow Source 312. Mobile camp units were on-route to the site, a few hundred meters away from the road and 312 (Figure 4).
- The ice bridge at Hans Crossing appeared to be stable and no flowing water was identified (Figures 5 and 6). There were 2 pieces of heavy equipment on site with no signs of leakage.

Zed Creek Crossing, Bridges A12 and A3 Observations:

- All environmental aspects were satisfactory (Figures 7, 8 and 9). Open water was observed downstream of the Bridge A12 crossing.

MATTERS FOR FOLLOW UP

- Retrieve the rock piles identified in the creek bed at Trail Valley Creek before snowmelt.
- As directed in the last Water Licence inspection report, the Licensee provided an update to the Inspector and the Board in the form of an independent report on the state of the sinkhole at Borrow Source 174. The findings of the report can be summarized as follows:
 1. The cause of the slumping could be partly attributed to the development of the borrow source and issues with drainage;

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|-------|-------------------|------------|-----------|----------|---|
| Date: | November 25, 2016 | Licence #: | N7L1-1835 | Page No: | 2 |
|-------|-------------------|------------|-----------|----------|---|



INDUSTRIAL WATER USE INSPECTION REPORT

- 2. There may or may not be a mass failure of the slope;
 - 3. No fisheries would be impacted if there was a mass movement downslope; and
 - 4. No additional mitigation measures are recommended.
- Some of these findings are unsatisfactory. The report notes that no fisheries would be impacted if there was a mass movement downslope however the same report notes that it is unknown if the lake downstream is fish-bearing. Further, the report recommends no additional mitigation measures but omits to discuss the guidance provided in the Pit Development Plan (PDP) for Borrow Source 174, under section 6.7: Permafrost Stabilization, which states that any exposed ice surfaces will be insulated with at least 1-2 m of suitable material, or overburden. Additionally, the appended Permafrost Monitoring Plan under the PDP, under section 2.1, provides mitigation measures to protect permafrost and ground ice encountered during material excavation activities, including covering any ice-rich material so that there is no unintended thaw flows and erosion as a result of permafrost degradation.
 - **The Licensee is directed to provide to the Inspector and the Board the following items before March 1st, 2017:**
 - 1. A **monitoring plan** for the impacted area at Borrow Source 174 in preparation for spring freshet; and
 - 2. If there are no plans to implement the approved guidance found under the PDP and PMP, a **rationale** as to the reasons why.

NON-COMPLIANCE/VIOLATIONS OF ACT OR LICENCE

- None to report at the time of the inspection however please take note of the concerns and the direction provided.

Inspector's Signature: _____

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|-------|-------------------|------------|-----------|----------|---|
| Date: | November 25, 2016 | Licence #: | N7L1-1835 | Page No: | 3 |
|-------|-------------------|------------|-----------|----------|---|



INDUSTRIAL WATER USE INSPECTION REPORT

INSPECTION IMAGES

Figure 1

Approved Water Source KP61: Overview from the main road, looking southeast.



Figure 2

Trail Valley Creek: Overview of 2 rock piles in the creek bed, looking west.





INDUSTRIAL WATER USE INSPECTION REPORT

Figure 3

Trail Valley Creek: Overview of the ice crossing/snowfill, looking south.



Figure 4

Borrow Source 312: Overview of the mobile camp units, looking northeast.





INDUSTRIAL WATER USE INSPECTION REPORT

Figure 5

Hans Creek Crossing: Ice bridge, looking southwest.



Figure 6

Hans Creek Crossing: Ice bridge, looking northeast.





INDUSTRIAL WATER USE INSPECTION REPORT

Figure 7

Zed Creek Crossing overview.



Figure 8

A12 Bridge Crossing overview.





INDUSTRIAL WATER USE INSPECTION REPORT

Figure 9

A3 Bridge Crossing overview.

