



14 November 2017

Inuvialuit Water Board
P.O. Box 2531
302, 125 Mackenzie Road
Inuvik, NT X0E 0T0

Attention: Mardy Semmler, Executive Director

RE: BAR-C: TUNUNUK POINT 2017 ANNUAL REPORT FOR WATER LICENSE N7L1-1836

As per the requirements listed in Part B.2 for Water Licence Number N7L1-1836, Imperial Oil Resources Ventures Limited (Imperial) is pleased to provide the Inuvialuit Water Board (IWB) with the 2017 Annual Report for the remediation work completed at BAR-C (Tununuk Point). This report also includes the surface water monitoring results associated with the dock removal based on the requirements of the Water Licence amendment approved by the IWB.

Further details on the dock removal, site monitoring and final remediation work completed in 2017 is provided below.

This information was prepared by WorleyParsons Canada Services Ltd., operating as Advisian, on behalf of Imperial.

a) Water Usage from Water Source

On February 14, 2017 the IWB was advised of a non-consumptive water use for the construction of an ice road spur from the Inuvik – Tuktoyaktuk ice road to the site to facilitate the winter dock removal.

As per the dock removal amendment application, approximately 20 m³ of water was used to build an ice ramp for site access.

b) Sewage Accepted by the Town of Inuvik

The monthly and annual quantities in cubic metres (m³) of sewage accepted by the Town of Inuvik in 2017 are shown on Table 1.



Table 1: 2017 Sewage Disposal Summary

Month	Discharge Location	Volume (m ³)
March	Inuvik Sewage Lagoon	195
September	Inuvik Sewage Lagoon	228
TOTAL for 2017		423

c) Non-Hazardous Waste

Three types of Non-Hazardous Waste (NHW) were removed from site during the 2017 construction season: soil with metals and/or petroleum hydrocarbons, metallic debris, and remaining general debris. Imperial completed debris searches and removals in June and August resulting in the off-site disposal of 52 bags of debris and larger metallic debris from across the site, respectively.

Table 2 presents a summary of the monthly and annual quantities for the three types of NHW as well as their final disposal locations. All necessary approvals were provided by the landfills / facilities prior to disposal.



Table 2: 2017 Non-Hazardous Waste Disposal Summary

Month	Non-Hazardous Waste Type	Quantity (m ³)	Final Disposal Location
February	Soil	33	Tervita Northern Rockies Landfill
March	Soil	933	Tervita Northern Rockies Landfill
	Metallic Debris (Dock sheet piles)	45	Inuvik Landfill
	Camp Wastes	46	Inuvik Landfill
June	General Debris	26	Inuvik Landfill
August	Soil	12	Tervita Northern Rockies Landfill
	Metal Debris (painted)	24	Richmond Steel
	Remaining General Debris	60	Inuvik Landfill
2017 TOTAL	Soil	978	Tervita Northern Rockies Landfill
	Metallic Debris	45	Inuvik Landfill
	Metal Debris (painted)	24	Richmond Steel
	Remaining General Debris (including Camp Waste)	132	Inuvik Landfill

d) Hazardous Waste

The only hazardous waste removed from the site in 2017 was one stockpile with soil containing leachable lead (UN 2291). In February, 2017, a total of 22.53 tonnes (10 m³) was transferred from BAR-C to the Swan Hills Treatment Centre near Swan Hills, AB. The waste manifest for this soil was included in the Site Remediation Closure Report (Advisian, 2017)¹ provided to the IWB under separate cover.

¹ Advisian, 2017. Site Remediation Closure Report: BAR-C, Tununuk Point, NT. Prepared for Imperial. October 6, 2017.

Table 2 presents a summary of the monthly and annual quantities for the hazardous waste as well as their final disposal locations. All necessary approvals were provided by the landfills / facilities prior to disposal.

Table 3: 2017 Hazardous Waste Disposal Summary

Month	Hazardous Waste Type	Quantity (m ³)	Final Disposal Location
February	Soil	10	Swan Hills Treatment Centre
2017 TOTAL	Soil	10	Swan Hills Treatment Centre

e) Waste Water Discharge

No waste water discharges occurred in 2017.

Table 4: 2017 Wastewater Discharge Summary

Area	Date of Discharge	UTMs (Northing/Easting)	Discharge Volume (m ³)	Direction of Discharge
n/a	n/a	n/a	0	n/a

f) Bioremediation Facility Treated Soils

The bioremediation facility was decommissioned during the 2015 Construction Season. There were no soils with Type B petroleum hydrocarbons treated at the site in 2017. Final remediation of all Type B soils was completed in 2017 by off-site disposal as documented in Section c) above.

g) Surveillance Network Program Summary

The surveillance network monitoring stations were decommissioned at the end of the 2015 Construction Season as no further borrow material extraction or bioremediation was planned.

A copy of the report documenting the surface water quality measurements from March 2017 during the in-stream dock removal works is provided in **Appendix A**. There were no total suspended solid (TSS), pH or total petroleum hydrocarbon (TPH) measurements that exceeded the guidelines as outlined in Part E.8 of the IWB water licence N7L1-1836.



h) Monitoring Plan Summary

Capping of Landfill A and B was completed during the 2015 construction season. A summary of the data and information generated during the execution of the 2017 Monitoring Plan is provided in **Appendix B**. No additional thermistors or groundwater monitoring wells were installed in 2017.

A summary of the tasks associated with the Monitoring Plan² for the landfills and waste disposal areas (WDAs) is presented below.

a) Groundwater Monitoring

Baseline groundwater monitoring was completed in 2015 (Year 1) and groundwater monitoring (Year 3) was completed in 2017. Results are provided in Appendix B. At present, there is insufficient data to determine any statistical trends as per the Abandoned Military Site Remediation Protocol (AMSRP). The next scheduled groundwater monitoring is in 2019.

b) Post-Construction Monitoring

Post-construction monitoring and inspection of the landfills and WDAs was completed from August 5 - 8, 2017 to collect thermistor measurements and assess the integrity of rehabilitated landfills/debris areas, respectively.

The 2017 monitoring showed the following:

i) Additional thermal measurements are needed to confirm long term freeze backs trends.

ii) The overall rating for all engineered landfill caps and WDA regrades performance is "acceptable".

c) Natural Environment Monitoring

Natural environment data collected during the 2017 construction season is summarized as follows:

i) Wildlife-associated observations in 2017 include the following: bear scat, wolf, bird egg shells, ptarmigan and sets of bear prints.

ii) There were no observations of people using the Site for traditional activities during the 2017 construction season.

² WorleyParsons, 2013. Monitoring Plan: BAR-C, Tununuk Point, NT. Prepared for Imperial Oil. December 13, 2013.



Reclamation Activity Summary

Revegetation of the landfills and WDAs is documented in the inspection report (see Appendix B). Some pro-active erosion mitigation was completed on the northeast corner of Landfill B.

Reclamation activities were completed in Area F namely,

- regrading of a slumped borrow area;
- regrading of stockpiled dock ballast soil; and
- confirmatory sampling and berm removal at the two temporary soil stockpile areas.

This work was inspected by an Inuvialuit Land Administration (ILA) inspector on September 12, 2017 and overall deemed satisfactory. Additional details on the confirmatory sampling have been provided to the IWB within the Site Remediation Closure Report (Advisian, 2017).

No further reclamation work is currently envisioned.

j) Modifications to the Reclamation Project

No modifications were made to the Reclamation Project in 2017.

k) Studies

No studies were required by the IWB and no future studies are planned.

l) Plan Updates

a) **Waste Management Plan**

No updates or revisions were made to this plan.

b) **Spill Contingency Plan**

No updates or revisions were made to this plan.

c) **Quality Assurance / Quality Control Plan**

No updates or revisions were made to this plan.

d) **Monitoring Plan**

No updates or revisions were made to this plan with the exception that monitoring the thermistor and groundwater monitoring well at Area J2 is now included.

e) **Remedial Action Plan**

No updates or revisions were made to this plan.



m) Discharges and Spills

No unauthorized discharges or spills occurred in 2017.

n) Spill Training

Training on spill mitigation and clean up procedures was provided to all on-site staff during the project kick-off meetings or during site orientation.



Closing

We trust the information provided satisfies the conditions of the Water Licence Part B.2. Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,

Ramy Rahbani

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Appendix A Dock Removal Water Quality Monitoring Report (Advisian, 2017)





Appendix B 2017 Site Monitoring Report

