



REPORT

Erosion and Sediment Control Plan

Tuktoyaktuk Base Remediation, Inuvialuit Settlement Region, Northwest Territories

Submitted to:

Inuvialuit Land Administration

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1.0 INTRODUCTION

This Erosion and Sediment Control (ESC) Plan was developed by WSP Canada Inc. (WSP) on behalf of Imperial Oil Resources Limited (Imperial), to support the remediation of the former Tuktoyaktuk Exploration Logistics Base Camp (Tuk Base or the Site) approximately 1.5 kilometres (km) southeast of the Hamlet of Tuktoyaktuk, Northwest Territories (NWT) (Figure 1).

This ESC Plan was prepared in accordance with standard best management practices to be employed during the remediation of Tuk Base (the Project). The ESC Plan is intended to:

- minimize erosion potential through effective planning, procedures and water management;
- identify erosion control measures to prevent mobilization of sediment; and
- identify control measures to prevent sediment release off site in the event of sediment mobilization.

This ESC Plan includes a description of the Site, provides suggested measures to control erosion and sediment by identifying potential impacts and mitigation measures, provides instructions for the installation, maintenance and monitoring of ESC measures, and defines monitoring and documentation requirements. The objective of the ESC Plan is to minimize impacts of erosion and sedimentation through the use of temporary controls and practices.

1.1 Site Location and History

The Site is at 69°25'35"N latitude and 132°57'20"W longitude on the Beaufort Sea coast approximately 1.5 km southeast of Tuktoyaktuk, NWT (Figures 1 and 2). The Site is on a lease (ILA85TJ079) held by Imperial from the Inuvialuit Land Administration (ILA). Tuk Base began operations in 1970 and operated as a staging and storage area for oil and gas exploration in the Arctic. In 1980, decommissioning of the Site began. Between 2001 and 2013 almost all major infrastructure on site was decommissioned and removed (Advisian 2019). As of 2018, the only notable features remaining on site included two historic landfills, a sewage lagoon, north and south docks and concrete pads.

1.2 Site Description

The Site covers a land area of approximately 54 hectares and generally comprises the former Tuk Base on the Upper Terrace, transitioning down to a Lower Terrace (created by infilling the low-lying natural topography with dredged ocean sediments) and the surrounding natural tundra as shown in Figure 2.

The Site is bordered by tundra to the north and south, with the Mayogiak Inlet and Tuktoyaktuk Harbour bordering the Site to the east and west, respectively. The former Northern Transportation Company Limited tank farm/lease is also to the north of the Imperial lease on Saviktok Point.

2.0 PROJECT SUMMARY

The Project-specific Remedial Action Plan (RAP) for the planned remediation works was submitted to the Inuvialuit Water Board (IWB) in March 2019 (Advisian 2019; Golder 2019), approved in July 2019 and amended in May 2020 (Golder 2020). The RAP has been guiding the following Project tasks since 2019 and continuing until 2029.

- Surface debris (including the wood piles from the former wooden wharf) will be collected, removed and disposed of off site at an approved disposal facility.

- Hazardous material (stemming from historical operations) encountered on site will be temporarily stored, transported off site and disposed of at an approved disposal facility.
- Soil impacted with light-end petroleum hydrocarbons (PHCs) will be treated on site and used as backfill.
- Soil impacted with heavy-end PHCs will be treated on site and/or disposed of off site at an approved disposal facility.
- Soils impacted with metals or polychlorinated biphenyls will be excavated and transported to an approved disposal facility.
- The Former Sewage Lagoon will be dewatered, backfilled and regraded/revegetated (as directed by the ILA).
- The North Dock will be utilized for the Project and then will either be repurposed (pending negotiations with the ILA) or demolished.
- The South Dock will be demolished.
- The concrete pads will be transported off site for re-use or appropriate disposal.
- Site access for personnel and equipment will be via barge and crew boats from the Hamlet of Tuktoyaktuk during the summer field programs and ice road during the winter field programs.
- Accommodation during the winter and summer field programs may be provided by the 802-barge camp or the Arctic Star barge camp, anchored either at the Site, or close to Tuktoyaktuk; the location of the camp may change between these two locations seasonally, depending on the number of personnel required for the Site.

After Project completion, the Site will be left in a condition that promotes long term geotechnical stability and positive drainage in all disturbed areas. The end land use will be “parkland” as defined by the Canadian Council of Ministers of the Environment (CCME 1999a and updates).

2.1 Contaminated Soil Excavations

Contaminated soil areas that will need to be excavated include the North and South Landfill and multiple locations throughout the former operations area at the Upper Terrace as defined in the RAP (Advisian 2019; Golder 2019, 2020). Each area will be excavated and, where possible, soil will be treated on site and used as backfill to promote positive drainage. Alternatively, soil that cannot be treated will be transported and disposed of off site at an approved, licensed facility. The disturbed areas will then be revegetated with native species (as directed by the ILA) to match surrounding land cover. The North and South Landfills will be the largest excavations on site.

2.2 North and South Landfills

The North Landfill is north of the lease boundary and contains approximately 2,000 cubic metres (m³) of impacted soil/debris (e.g., construction/demolition debris and general camp debris) that will be excavated, treated and/or removed and disposed of off site. The South Landfill is in the southeast portion of the Upper Terrace (Figure 2). It is considerably larger than the North Landfill and is currently (2025) estimated to contain roughly 18,000 m³ of impacted soil/debris (e.g., drums, domestic debris, rig mats, heavy tangled cables and possible metal decking materials) that will be excavated, treated and/or removed and disposed of off site. Following confirmatory soil sampling, both landfill excavations will be recontoured to promote positive drainage.

2.3 Draining and Reclamation of Former Sewage Lagoon

The Former Sewage Lagoon water will be sampled for water quality parameters to confirm there are no exceedances of applied guidelines. Upon analytical confirmation, the water will be pumped off to the land at a minimum of 30 metres (m) away from the nearest water body and 100 m away from the nearest fish bearing waters. The remaining berms will be used as backfill to re-contour the lagoon area to integrate into the surrounding landscape. The reclaimed lagoon area will then be re-vegetated using a combination of live staking of willows, by harvesting live stakes from the surrounding area, seeding of native species and natural revegetation as approved by the ILA to avoid the establishment of invasive species.

2.4 North and South Docks

Structural assessments of the North and South Docks were completed in 2018 (Advisian 2018) which concluded that the North Dock is in servicable condition while the South Dock was found to be at the end of its servicable life. The North Dock is anticipated to remain intact during the remediation program while the South Dock will be removed. The granular material will be excavated to restore the natural shoreline and then the dock sheet piles will be removed. A Dock Repair and Removal Monitoring Plan was developed to mitigate possible sedimentation effects during South Dock removal (submitted to the IWB in March 2019).

2.5 Concrete Pads

Two concrete pads as well as a number of stockpiled smaller slabs remain on site. These slabs will be excavated and cut to size prior to being removed from Site for reuse or appropriate disposal.

3.0 MITIGATION MEASURES

The following materials will be available at the Site to execute the ESC Plan:

- straw wattles;
- silt fencing (geotextile and wooden stakes); and
- pumps and hoses.

Additional supplies may be mobilized during the construction season should they be required.

3.1 Pre-Excavation

Prior to any excavation activities taking place, each area will be visually inspected to identify any mitigation measures that will be required to prevent erosion. Mitigation measures may take the form of earth works, engineered controls or postponing the work until more favourable conditions are present (e.g., no slope excavation during heavy rain storms). Prior to starting remediation activities in any area, the following mitigation measures may be implemented as required :

- surface debris will be cleared and disposed of before excavation begins;
- soil treatment cells will be regraded to provide control of local surface water, including the construction of perimeter berms to prevent impacted soil/water releases;
- surface water run-on will be sampled to confirm it meets release criteria and will be redirected away from work areas using diversion ditches, berms or grading to promote positive drainage; estimated volumes of released surface water will be tracked and reported in the seasonal execution summary report;

- engineered controls such as straw wattles, silt curtains or silt fencing will be installed, as required, at the perimeter of each work area and next to sensitive features (e.g., surface water); and
- daily weather forecasts will be reviewed to prepare for additional runoff or postponing of work, as required.

3.2 Excavation and Backfilling

During excavation and backfilling, the following mitigation measures may be implemented as required:

- walls of excavations will be properly sloped to prevent loose material from falling into the excavation;
- excavations will be backfilled in 15 centimetre compacted lifts to make them less susceptible to erosion and settlement;
- excavations will be backfilled as soon as possible to minimize permafrost deterioration and to prevent the accumulation of water; if water does accumulate, it will be sampled to confirm it meets release criteria and pumped out in accordance with the applicable regulatory requirements prior to backfilling/recontouring;
- work adjacent to any water body will require the installation of straw wattles or silt fencing constructed out of geotextile and survey stakes to be erected between the work area and the water body;
- roughening of slopes on the contour or tracking with dozer tracks will help to capture moisture and seep to promote natural revegetation and minimize erosion; and
- installation of additional engineered controls as needed.

3.3 Post-Excavation

Areas that are at a high risk of erosion, such as slopes and gullies, will be monitored post-excavation for signs of obvious erosion. The Site Supervisor will perform periodic checks of the installed ESC measures and will repair/replace as necessary. Should additional sediment capture methods be required, the ESC Plan will be amended, and new/additional measures will be installed. All temporary engineering controls will be removed from Site once the Project is complete.

4.0 MONITORING ACTIVITIES

During excavation and backfilling, the following monitoring activities will be employed as required:

- periodic checks of all ESC measures to assess placement and function;
- repair/replacement of mitigation measures as necessary; and
- implementation of additional mitigation measures on an as-needed basis.

An example Inspection and Maintenance Form has been included in Appendix A to be used during regular site inspections to track the performance of the installed ESC measures.

5.0 REFERENCES

Advisian. 2018. Tuk Base Wharf D3 and Small Wharf Level II Condition Assessment. Document Number 407074-00293-MA-REP-0002. Issued 8 November 2018.

Advisian. 2019. Tuk Base Remedial Action Plan. Document Number 407074-00293-701-CA-REP-0001. 19 March 2019.

CCME (Canadian Council of Ministers of the Environment) 1999a and updates. Canadian Environmental Quality Guidelines: Soil Quality Guidelines for the Protection of Environmental and Human Health.

Golder (Golder Associates Ltd.). 2019. Re: Remediation Action Plan for Tuk Base. 25 March 2019.

Golder. 2020. Re: Remediation Action Plan for Tuk Base. 8 May 2020.

Figures



LEGEND

LEASE BOUNDARY

02505001,000

METRES

NOTE(S)
1. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
2. COORDINATE SYSTEM IS UTM ZONE 8 NAD 83.

REFERENCE(S)
1. BASE MAP: VANTOR

CLIENT
IMPERIAL OIL LIMITED

PROJECT
TUKTOYAKTUK BASE REMEDIATION, INUVIALUIT SETTLEMENT
REGION, NORTHWEST TERRITORIES

TITLE
SITE LOCATION



CONSULTANT	YYYY-MM-DD	2026-03-09
DESIGNED	J.REDSTONE	
PREPARED	J.REDSTONE	
REVIEWED	V.ANDERSON	
APPROVED	B.SUEN	

PROJECT NO.
CA-GLD-18105460

YEAR/DOC
2026/IWB

REV.
0

FIGURE
1

PATH: S:\Client\Imperial_Oil\tuktoyaktuk\99_PROJ\18105460_IDL_2026\40_PROJ\0002_IWB\CA-GLD-18105460-2026-IWB-XXXX.dwg PRINTED ON: AT: 12:00:42 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25mm



LEGEND
— CURRENT ROAD EDGE

0 50 100 200
1:3,250 METRES

NOTE(S)
1. ALL UNITS ARE IN METRES UNLESS OTHERWISE NOTED.
2. COORDINATE SYSTEM IS UTM ZONE 8 NAD 83.

REFERENCE(S)
1. PRE-CONSTRUCTION SURVEY CONDUCTED BY INUKSHUK GEOMATICS INC. DATED: AUGUST 25-29, 2015.
2. RECORD SURVEY CONDUCTED BY INUKSHUK GEOMATICS INC., SUMMARIZING CONSTRUCTION ACTIVITIES UP TO AUGUST 10, 2022. PROVIDED BY GOLDER, RECEIVED: OCTOBER 13, 2022.
3. AERIAL IMAGERY SUPPLIED BY INUKSHUK AND COLLECTED ON AUGUST 26, 2024 BY THE PLEIADES SATELLITE CONSTELLATION.

CLIENT
IMPERIAL OIL LIMITED

PROJECT
TUKTOYAKTUK BASE REMEDIATION, INUVIALUIT SETTLEMENT REGION, NORTHWEST TERRITORIES

TITLE
SITE PLAN

	CONSULTANT	YYYY-MM-DD	2026-03-11
	DESIGNED	J.REDSTONE	
	PREPARED	J.REDSTONE	
	REVIEWED	V.ANDERSON	
	APPROVED	B.SUEN	

PROJECT NO.	YEAR/DOC	REV.	FIGURE
CA-GLD-18105460	2026/IWB	0	2

APPENDIX A

Inspection and Maintenance Form

INSPECTION AND MAINTENANCE FORM

Construction Site Location:				Construction Activities on Site:											
Heavy Equipment on Site:				Current Weather:											
Date:				Weather Forecast:											
Date of Last Inspection:				mm of rain in last week:											
				mm of rain in last 24 hours:											
Type of Erosion Control Measure	Location on Construction Site	Intended Function	Sediment Levels	General Condition			General Performance			Maintenance Required		Type of Maintenance Required	Site Supervisor Notified		Date Repairs to be Completed By
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
			0 – 1/4 - 1/2 – 3/4-Full- not applicable	poor	fair	good	poor	fair	good	yes	no		yes	no	
Notes:															

Inspector Signature: _____

Inspector Name: _____

