



May 31, 2019

Bijaya Adhikari
Science and Regulatory Coordinator
Inuvialuit Water Board
P.O. Box 2531
125 Mackenzie Road
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**Re: Imperial Oil Environmental and Property Solutions
Water Licence Application – N5L8-1841
Tuk Base Remediation Project
Request for Review and Comments**

Dear Mr. Adhikari,

The Department of Environment and Natural Resources (ENR), Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities under the *Environmental Protection Act*, the *Forest Management Act*, the *Forest Protection Act*, the *Species at Risk (NWT) Act*, the *Waters Act* and the *Wildlife Act* and provides the following comment for the consideration of the Board.

Topic 1: Industrial and Solid, Liquid or Sewage Waste Disposal

Comment(s):

If the Proponents Waste Management Plan or methods of waste disposal indicate that project waste, or industrial waste, will be transported to community infrastructure for disposal, the Proponent should not assume they may deposit industrial wastes, generated outside of community boundaries, in Northwest Territories community Solid and Liquid Waste Disposal Facilities.

Recommendation(s):

- 1) Should the Proponent intend to deposit waste in an NWT community Solid and Liquid Waste Disposal Facility, ENR requests that the Proponent demonstrate in the Waste Management Plan, and to the IWB, that the receiving communities' Solid and Liquid Waste Disposal Facility holds a Water Licence that authorizes

the disposal of any industrial waste streams originating from outside municipal boundaries. The Proponent should also demonstrate to the IWB that the community has been consulted, and has consented in writing, regarding the use of its infrastructure for disposal of the waste streams and quantities in question, and the disposal of such wastes will not contravene the Waters Act or the *Environmental Protection Act* and related Regulations and Guidelines.

Topic 2: Incineration and Open Burning

Comment(s):

The proponent is planning on using an incineration for this project.

Recommendation(s):

- 1) If open burning will be utilized during project activities, only those waste streams identified in the *Municipal Solid Wastes Suitable for Open Burning* document located on the GNWT ENR website may be open burned without the use of an approved incinerator. The document can be found at the following site.

http://www.enr.gov.nt.ca/sites/enr/files/guidelines/solid_wastes_suitable_open_burning.pdf

- 2) At any time, or in the event that the Proponent intends to incinerate any waste streams, the Proponent should provide to the Board *Incineration Management Strategies* that demonstrate that the device and procedures selected are suitable to the waste stream intended for incineration. Otherwise, harmful releases of toxic compounds, will result. Incineration strategies should meet the emissions limits established under the Canada-Wide Standards (CWS) for Dioxins and Furans (CCME 2001), CWS for Mercury Emissions (CCME 2000) and the NWT Ambient Air Quality Guidelines. The *Incineration Management Strategies* should also include:
 - a) A description of waste streams intended for incineration;
 - b) Selected incineration technology and rationale for selection (the minimum requirement to accommodate complex waste streams should be a dual-chamber, controlled-air incinerator);
 - c) A description of recycling and waste segregation plans that control waste entering the incinerator;
 - d) Operator training and qualifications, and the use of trained and designated operators;
 - e) Procedures for operation and maintenance, including record-keeping (i.e. completion of burn cycle and maintenance logs, and recording of the weight of each waste load charged to the incinerator);

- f) A reporting requirement to summarize the tracking and record-keeping component; and,
 - g) Weigh scales to record the weight of each load charged to the incinerator;
 - h) Details of emission measurement methods, where applicable.
- 3) Residual ash from the incineration of non-segregated waste must be tested prior to disposal to ensure that it meets the criteria specified in the *NWT Environmental Guideline for Industrial Waste Discharges*. Incineration ash can be contaminated with toxic compounds and by-products such as dioxins and furans and should therefore be tested to ensure that it is disposed of in an appropriate and approved manner.

Topic 3: Hazardous Waste Management

Comment(s):

All Proponents that generate hazardous wastes must be registered as a generator of hazardous waste in the NWT.

The Guideline for the General Management of Hazardous Waste in the NWT defines hazardous waste and outlines the roles and responsibilities of generators, carriers, and receivers of hazardous waste in the NWT. The ENR, Environment Division (ED) registers generators, carriers, receivers, and tracks the disposal of hazardous waste generated in the NWT to registered receiving facilities on hazardous waste movement documents (manifest). The definition of hazardous waste includes all waste materials that are 'dangerous goods' according to the Transportation of Dangerous Goods Regulations, and any additional waste of special concern that the ED has determined hazardous until proven otherwise, including but not limited to:

- a) incinerator waste and/or residuals (including bottom ash and fly ash);
- b) any liquid or solid wastes contaminated with refined petroleum products;
- c) bilge wastes;
- d) vehicle or vessel servicing wastes
- e) drilling wastes;
- f) produced fluids (Glycol / Hydrocarbon / Inorganic Mixtures);
- g) tailings; and
- h) any hydrocarbon, lead, mercury or other forms of contaminated soils.

The Guideline for the General Management of Hazardous Waste in the NWT and the Transportation of Dangerous Good Regulations may be found at the following sites:

http://www.enr.gov.nt.ca/sites/enr/files/guidelines/general_management.pdf

<http://www.tc.gc.ca/eng/tdg/clear-menu-497.htm>

Recommendation(s):

- 1) If the Proponent is using or generating hazardous waste, they must register as a generator of hazardous waste in the NWT and track the disposal of hazardous waste from the site activities to registered receivers on hazardous waste movement documents provided by ENR. Please contact the Environmental Management and Waste Management Division, ENR to register or for more information contact Mr. Lee Ross, Hazardous Waste Management Specialist, by email at (Lee_Ross@gov.nt.ca) or by phone (867) 767-9236 extension 53187.

Topic 4: Fuel Storage and Spill Contingency Planning and Reporting

Comment(s):

ENR acknowledges the proponent's Spill Contingency Plan.

In addition, the Proponent should also follow best practices for fuel storage and spill containment during project activities which may include the following recommendations.

Recommendation(s):

- 1) To assist in spill contingency planning, information is provided in EPA *Spill Contingency Planning and Reporting Regulations* found here:

<https://www.justice.gov.nt.ca/en/files/legislation/environmental-protection/environmental-protection.r2.pdf>

If clarification or further information is needed please contact the Environment Division, ENR directly to aid in the development of the Plan

- 2) In accordance with the *Spill Contingency Planning and Reporting Regulations Section 10*, all spills in accordance with Schedule B must be reported immediately to the 24-hour Spill Report Line (867) 920-8130.
- 3) With respect to the *Environmental Protection Act Section 5 (1b)* all spills, regardless of amount, must be cleaned up, and contaminated materials disposed of at an approved facility, or in an approved manner. Additionally, as indicated in *Section 5(1c)* all reasonable efforts must be made to notify any parties affected or potentially affected by the spill.
- 4) Fuel storage areas should be greater than 100m distance from the ordinary high water mark of a water body and not located in a drainage channel.

- 5) All fuel or storage vessels containing hazardous substances left for extended periods of time (including overnight in vehicles), should be stationed in an area that contains sufficient secondary containment (i.e. Drip pans, lined bermed areas, double walled enviro-tanks etc.).
- 6) It is recommended spill kits be provided. Personnel should be trained to ensure that in the event of a spill it is contained and remediated appropriately to industry-accepted best practices and regulatory approval. In case refuelling takes place near water, in water spill planning should be considered to prevent inadvertent releases.
- 7) ENR recommends, for the operator's convenience and increased environmental protection, that all heavy equipment and refuelling vehicles carry portable spill kits that include items such as absorbent pads, containment booms, and spill pool catchment receptacles. Readily available and fully stocked spill kits can effectively mitigate potential spills.

Topic 5: Cumulative Effects Tracking

Comment(s):

Keeping track of the disturbance footprint of development activities is an important component of tracking and informing the management of cumulative effects on wildlife and wildlife habitat.

Recommendation(s):

- 1) The Proponent should submit the bounding coordinates or geospatial data for the proposed project footprint and for the completed project footprint to the Land and Water Board for placement on the public registry. The Mackenzie Valley Land and Water Board's "*Standards for Geographic Information Systems (GIS) Submissions*" should be followed when submitting spatial data.

Topic 6: Wildlife Abodes

Comment(s):

Subject to sub-section 51(2) of the *Wildlife Act*, it is illegal to break into, destroy, or damage a den, beaver dam or lodge, muskrat push-up or hibernaculum unless you have an Aboriginal or treaty right or a Permit to do so.

Protection of dens, beaver lodges, muskrat push-ups, and hibernacula is essential to ensuring reproductive success and survival of both adults and young.

Recommendation(s):

- 1) The Proponent should conduct pre-activity surveys within 800m of the project footprint to identify active bear dens if project activities will occur between September 30 and March 30. Surveys should be conducted in the fall to detect freshly dug dens.
- 2) If an active bear den is detected, or suspected, the Proponent should implement and maintain an 800 m exclusion zone until the bear emerges in spring.
- 3) If a bear den and exclusion zone would result in the halt of part or the entire program, the Proponent should contact ENR to discuss alternative mitigation options. The location of active bear dens should be kept confidential between the developer and ENR until after emergence in the spring.
- 4) It is recommended that, if encountered, beaver lodges, muskrat push-ups, and hibernacula are not disturbed or damaged.

Topic 7: Wildlife Disturbance and Harassment

Comment(s):

Unless authorized by a Licence or Permit, paragraphs 52(a) and (b) of the *Wildlife Act* prohibit engaging in an activity that is likely to result in significant disturbance to big game or other prescribed wildlife, or to unnecessarily chase, fatigue, disturb, torment or otherwise harass game or other prescribed wildlife.

Schedule A – Part 1 of the *Wildlife General Regulations*, sets out the species prescribed as big game, and Schedule B sets out prescribed wildlife for the purpose of paragraphs 52(a) and (b) of the *Wildlife Act*.

Disturbance to wildlife from sources such as noise, light, vibrations, and human presence can result in energetic stress, avoidance of key habitat, loss of reproductive fitness, injury or mortality of wildlife. Activities that may cause sensory disturbance to wildlife include vehicle traffic, stationary machinery, noise from blasting, excavation, crushing, seismic testing, vegetation clearing, and lighting or flaring.

Recommendation(s):

- 1) ENR recommends the proponent employ the guidelines contained in the “*EISC Minimum Flight Altitude Guidelines*” during project activities.

- 2) ENR recommends the proponent read and utilize the advice provided the "*Flying Low Brochure*" attached to this letter.
- 3) The Proponent should be aware that no wildlife should be disturbed, chased, or harassed by human beings on foot, in a motorized vehicle, or by aircraft. Unless authorized by a Licence or Permit, paragraphs 52(a) and (b) of the *Wildlife Act* prohibit engaging in an activity that is likely to result in significant disturbance to big game or other prescribed wildlife, or to unnecessarily chase, fatigue, disturb, torment or otherwise harass game or other prescribed wildlife. However, subject to section 55 of the *Wildlife Act* a person may chase wildlife away from a camp or work site if doing so is necessary to prevent injury or death to a person or damage to property.
- 4) Wildlife shall be given the right of way at all times.
- 5) Suspend activities temporarily if one or more individuals of a big game species are spotted within five hundred (500) meters of the work site.

Topic 8: Wildlife Sightings and Encounters

Comment(s):

Proponents are encouraged to record wildlife sightings and to submit these records to ENR's WMIS. Wildlife sightings data provides useful information for assessing changes in species distribution and the timing and location of different life history events such as migration, denning, nesting, calving, etc.

Recommendation(s):

- 1) Submit information about wildlife sightings (species, date, time, location, number of individuals, sex, behaviour, etc.) to WMIS at WMISTeam@gov.nt.ca. Inuvik Region, ENR is especially interested in observations of caribou, muskox and any bear sightings. For further information on the WMIS consult:

<http://www.enr.gov.nt.ca/programs/wildlife-research/wildlife-management-information-services>

- 2) Contact the Inuvik regional ENR office at 867-678-6696, to report wildlife sightings, and to obtain blank wildlife sightings forms.
- 3) It is recommended the proponent and personnel observe the advice in the attached *General Bear Encounter Guidelines*.

Topic 9: Wildlife Attractants and Waste Management

Comment(s):

Subject to sub-section 66(1) of the *Wildlife Act* no person shall store food, waste, or other substances in a manner that may attract big game or other prescribed wildlife and put people, domestic animals, or wildlife in danger.

Subject to sub-section 65(1) of the *Wildlife Act*, it is illegal to intentionally feed big game, furbearers or other prescribed wildlife. Schedule A – Part 2 of the *Wildlife General Regulations* sets out the species prescribed as fur-bearers.

Recommendation(s):

- 1) The Proponent should utilize food and garbage handling and storage procedures that will minimize the attraction of wildlife.
- 2) The Proponent should store all food, waste, washed recyclables and debris that may attract wildlife within sealed animal proof containers until final disposal.
- 3) The Proponent should ensure that sealed animal proof containers are cleaned once emptied to minimize the attraction of wildlife.
- 4) The Proponent should ensure that all grey water (dishwater, showers, laundry, etc.) and black water (sewage) are treated and disposed of in a manner that will minimize the attraction of wildlife.
- 5) The Proponent should remove all waste petroleum products including used oil filters, rags, scrap metal, discarded machinery, parts, drums, barrels, or plastics to an approved waste disposal facility.

Topic 10: Reporting Wildlife Defence/Property Kills and Wildlife Incidents

Comment(s):

Subject to paragraph 57(a) of the *Wildlife Act*, any big game or other prescribed wildlife that is killed to prevent injury or death to a person or damage to property must be reported to ENR as soon as is practicable. Section 7 of the *Wildlife General Regulations* describes what information must be included in the report.

Subject to section 58 of the *Wildlife Act* and sub-section 8(1) of the *Wildlife General Regulations*, any person who accidentally kills or seriously wounds big game or other prescribed wildlife with a motorized vehicle on a highway must report the event to an officer within 24 hours after the incident.

Recommendation(s):

- 1) Report all sightings of bears in and around the project location to your local ENR office. Any defence of life and property kills must be reported to the appropriate ENR office immediately. Please contact the following Regional Office as required:
 - Inuvik Region Wildlife Emergency Line at (867) 678-0289
- 2) Ensure all field personnel have completed a bear safety training course to decrease the risk of attracting bears to work sites and threats to human safety, learn how to respond to bear encounters, and decrease the risk of wildlife mortality resulting from kills in defence of life and property.
- 3) Consult the “Safety in Grizzly Bear and Black Bear Country” brochure, available at:

http://www.enr.gov.nt.ca/sites/enr/files/resources/safety_in_grizzly_and_black_bear_country_english.pdf
- 4) Report to an ENR officer as soon as is practicable any wildlife that is killed to prevent injury or death to a person or damage to property.
- 5) Report to an ENR officer any big game or other prescribed wildlife that is killed or seriously wounded by a motorized vehicle on a highway within 24 hours after the incident.
- 6) Reports must include at minimum the name of the person who killed or injured the wildlife, an explanation of the incident, the time, date and location of the incident, the species or quantity involved, and any other information requested by the wildlife officer.
- 7) Contact the regional ENR office to obtain blank wildlife incident forms.

Topic 11: Wildlife: NWT Listed and Pre-listed Species at Risk

Comment(s):

Sections 76 and 77 of the *Species at Risk (NWT) Act* require the Minister of Environment and Natural Resources to make a submission to the body responsible for assessing the potential impacts of a proposed development, or for considering a Land Use Permit or Water Licence application, respecting the potential impacts of the proposed development, Permit or Licence application on a NWT-listed or pre-listed species or its habitat. NWT-listed species are those that are on the NWT List of Species at Risk. Pre-listed species are those that have been assessed by the NWT Species at Risk Committee (SARC) but have not yet been added to the NWT List of Species at Risk.

The Proponent should be aware that NWT-listed or pre-listed species at risk and their habitat may also be subject to protection under existing sections of the NWT *Wildlife Act*.

As a best practice, ENR encourages the Proponent to consider potential impacts, mitigation measures and monitoring requirements for species at risk listed under the federal *Species at Risk Act*, as well as those designated as at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that may occur in the project area, and the prohibitions that may apply to these species under federal legislation.

The project area overlaps with the ranges of the following NWT-listed and/or pre-listed species:

- [Polar Bear](#) – Listed as of Feb 2014, Special Concern in the NWT
- [Grizzly Bear](#) – Listed as Threatened
- [Barren-ground Caribou](#) - Listed as Threatened

Recommendation(s):

- 1) Although the project overlaps with the range(s) of the species listed above, ENR is of the opinion that the nature, scope, areal extent, scale and/or timing of the proposed project are such that the likelihood of significant negative impacts to NWT-listed or pre-listed species at risk is minimal if the recommended mitigation measures are implemented.

Topic 12: Estimated 38,750 m³ of Hydrocarbon Contaminated Soils for On-Site Treatment

Comment(s):

According to Section 3.4 of the Waste Management Plan (WMP), an estimated 38,750 m³ of soils had concentrations exceeding guidelines for petroleum hydrocarbons (PHCs), metals, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), barite, ammonia, nitrates, arsenic and mercury.

Recommendation(s):

- 1) ENR recommends that the Proponent specify which Guidelines were used to determine soils exceedances.

Topic 13: Soil Treatment – Concrete Pad and Lined Facility

Comment(s):

Section 5.2 of the WMP specifies that “Parts of the remaining concrete pads may be used as treatment cells for the PHC-impacted soil.”

This section further specifies that a *bermed* soil treatment area will be constructed at the beginning of the Project, ‘to prevent potential leachate from contaminated soil’. The soil will be excavated and placed in piles within the treatment area, where they will be aerated by mechanic rotating of the piles. Nutrients will also be added to increase the rate of biodegradation. Figure 2A submitted as ‘Soil Treatment Cell Design’ presents both a berm cell of ~ 150 m x 75 m, and a concrete pad (~ 50 m x 25 m).

Recommendation(s):

- 1) ENR recommends that IOR specify whether or not the bermed soil treatment area will also be using a protective liner underneath the facility, in order to contain contaminated leachate within the treatment area.
- 2) ENR recommends that IOR specify how leachate migration outside of each concrete pad will be controlled and contained (i.e. berms, liner and/or else).
- 3) ENR recommends IOR specify how concrete pad(s) will be used in combination with the treatment area, if any other concrete pad(s) outside of Figure 2A perimeter will be used, and the quantity of soil that may managed at each concrete pad.

Topic 14: Liquid/Solid Wastes Management at Former Lagoon – Discharge Criteria

Comment(s):

The unknown quality of liquid/solid wastes stored within the former lagoon was confirmed by the Proponent in Response #2 to the IWB letter, with the specification that the lagoon has not been in operation since the late 1980s. Table 1 of the WMP enumerated the several on-site excavation locations of contaminated soils throughout the site, also reflected in IOR Remedial Action Plan (p. 71 of the Project Description).

The former sewage lagoon covers a surface area of 2,000 m², with a depth of ~ 1 m, for an estimated total of 2,000 cubic meters of wastes. Section 1.3 of the WMP specifies that the old sewage lagoon will be dewatered, backfilled and regraded.

ENR notes that p. 72 of the Project Description illustrates that two (2) surface water samples were previously taken at the lagoon. Section 5 of the Project Description also specifies that decommissioning activities of the former sewage lagoon will include sampling of the wastewater to ensure it meets discharge criteria, followed by pumping *to the terrestrial environment* (section 7 of WL application).

No information was provided on alternative management procedures that will be adopted should water be unacceptable for discharge.

Recommendation(s):

- 1) ENR recommends that IOR specify which treatment method or alternative disposal location will be adopted in the eventuality that wastewater is unacceptable for discharge,
- 2) ENR recommends that Discharge Criteria limits (or EQCs) selected be protective of the surrounding environment, such as those suggested by the Canadian Council of Ministers of the Environment (CCME). The Board may also request to see results from past surface water sampling conducted at the former sewage lagoon to help with the preliminary characterization of that effluent.
- 3) Considering the industrial history of the site and numerous identified Areas of Probable/Potential Concern (APCs), ENR recommends that the former sewage lagoon be tested for a comprehensive list of parameters prior to discharge, including (but not limited to): metals (ICO-MS Metal Scan (Total), DOC (Dissolved Organic Carbon), Total Phenols, BTEX (Benzene, Toluene, Ethylbenzene, Xylene), TPH (Total Petroleum Hydrocarbons Fraction 1, Fraction 2, Fraction 3 & Fraction 4).

Topic 15: Acceptance of Wastes from IOR Remediation Project (3rd Party)

Comment(s):

Section 6.3 of the WMP specifies that 'Grey water and sewage waste will be stored on board the barge camp and will be transferred to the wastewater treatment center (or Sewage Disposal Facilities (SDF)) in Tuktoyaktuk at the end of each season, or once the Project is completed.

Attached to the WMP is a letter of agreement from the Hamlet of Tuktoyaktuk SAO for the acceptance of “non-polluted sewage” discharges only at Tuktoyaktuk SDF. The SAO further specifies that the Hamlet will not accept any hazardous material into their sewage lagoon.

Please note that wastes above Discharge Criteria from the former sewage lagoon may affect/impair the treatment capabilities of Tuktoyaktuk SDF and therefore should not be disposed at the Hamlet’s or any other municipal SDFs within the NWT.

Recommendation(s):

- 1) ENR recommends for the Proponent to confirm that while “non-polluted sewage” from the camp may be deposited at Tuktoyaktuk SDF, effluents and/or wastes from the former sewage lagoon will not be sent to Tuktoyaktuk sewage lagoon for disposal.
- 2) ENR recommends that effluents and wastes from the old sewage lagoon are sampled by IOR prior to disposal at Tuktoyaktuk’s SDF to ensure no additional contaminant streams are discharged into the municipal facilities.

Comments and recommendations were provided by ENR technical experts in the Water Management and Monitoring Division, the Environmental Protection and Waste Management Division, the Wildlife Management Division and the Inuvik Region and were coordinated and collated by the Environmental Assessment and Monitoring Section (EAM), Environmental Stewardship and Climate Change Division.

Should you have any questions or concerns, please do not hesitate to contact Patrick Clancy, Environmental Regulatory Analyst at (867) 767-9233 Ext: 53096 or email patrick.clancy@gov.nt.ca.

Sincerely,



Patrick Clancy
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