Waste Management Plan for the Mackenzie Highway (NWT#1) Km 278-800 Operations and Maintenance

Government of the Northwest Territories – Department of Infrastructure

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Government of
Northwest Territories

Plan Maintenance and Control

Waste Management Plan Document History

Version #	Section(s) Revised	Description of Revision	Prepared by	Issue Date

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Abbreviations

ECC	Department of Environment and Climate Change, Government of the Northwest Territories
EPA	Environmental Protection Agency
GNWT	Government of the Northwest Territories
INF	Department of Infrastructure, Government of the Northwest Territories
kg	Kilogram
km	Kilometre
L	Litre
LUP	Land Use Permit
m	Metre
NT	Northwest Territories
NWT	Northwest Territories
MGAR	Mount Gaudet Access Road
MVLWB	Mackenzie Valley Land and Water Board
MVH	Mackenzie Valley Highway
O&M	Operations and Maintenance
SCP	Spill Contingency Plan
TDGR	Transportation of Dangerous Goods Regulations
WMP	Waste Management Plan

1 Introduction

This Waste Management Plan (WMP) has been developed by the Government of the Northwest Territories (GNWT) Department of Infrastructure (INF), to accompany the renewal Land Use Permit application for MV2016E0006 which covers the operations and maintenance activities associated with the NWT Highway 1 from Km 278-800. This land use permit renewal is required for the ongoing operations and maintenance of the highway and associated access roads.

The purpose of the WMP is to provide a guide to all site personnel on the waste management goals, objectives and procedures to be followed during the permitted operations and maintenance activities. The WMP will ensure components of the environment, including air, water, land, vegetation, wildlife and fish, are not negatively affected. It will ensure aesthetic and land use values remain intact and comply with all applicable acts and regulations as well as conditions outlined in the INF's LUP. The WMP has been developed in accordance with the Guidelines for Developing a Waste Management Plan, prepared by the MVLWB (2011).

1.1 Contact Information

1.1.1 Proponent

If regarding **Hwy #1 O&M**:
Terry Brookes
Manager - Transportation
GNWT INF
5015 49th street, PO Box 1320
Yellowknife, NT. X1A 2L9
Telephone: 867-767-9084 ext. 31065
Email: Terry_Brookes@gov.nt.ca

1.1.2 Contractor

To be determined

1.2 Effective Date

This WMP will come into effective immediately once the permit is issued. The WMP will be revised as needed to reflect site-specific conditions. Revisions will be submitted to MVLWB.

1.3 Distribution List

This plan and the most recent revisions will be distributed to:

- Project Manager(s), INF
- Project Manager, Contractor (upon contract award)
- MVLWB

1.4 Environmental Policy and Procedures

This WMP deals specifically with procedures and policies for the safe and responsible handling, storage and disposal of waste materials, which have served their original purpose and are scheduled for disposal. It provides background information on the handling of wastes and details the operational requirements to ensure that permitted Projects under this LUP are conducted in an environmentally responsible manner.

1.5 Legislation and Guidelines

This plan been developed in consideration of the applicable territorial legislation including the following reference documents:

- Northern Land Use Guidelines: Camp and Support Facilities (Lands 2014a)
- Northern Land Use Guidelines: Roads and Trails (Lands 2014b)
- Guideline for the General Management of Hazardous Waste in the NWT (ENR 2017)
- Guidelines for Developing a Waste Management Plan (MVLWB 2011)

2 Project Details

The 'operation' will consist of the following:

- The continuous and ongoing operation and maintenance of the existing NWT Public Highway system within the area along the Mackenzie Highway between kilometre (km) 278 and 800 which includes community access roads for Fort Simpson, Jean Marie River, Trout Lake, Willow Lake River Settlement, and Wrigley as listed under the Highways Act, and includes highway and airport infrastructure: (i.e. roadway embankment, bridge, and culvert maintenance and replacement, winter road and ice bridge construction and maintenance, airstrip surfacing and Ferry Services and Operations). All maintenance and operations will be undertaken following the Standards for Highway Maintenance as outlined in the Highway Maintenance Management System Manual, normal construction practices and in accordance with the various regulatory agencies, as applicable;
- The permit area will be two (2) kms in width, one (1) km on each side of the existing public highway/roadway centerline through the entire length of the permit area including access roads;
- To develop and obtain granular borrow materials, common materials, blast rock, rip-rap, clay, sand and gravel, from: areas outside the existing 60 metre (m)-wide Public Highway Corridor through applications to the Department of Lands for Quarry Permits;
- To place and maintain granular stockpiles at existing or approved quarry sites for the purpose of ongoing maintenance and operations of the public highway system within the permit area;
- To place temporary construction/work camps at existing quarry or previously developed sites within the permit area for the purpose of carrying out maintenance and operations of the roadways within the permit area;

- To temporarily store maintenance and operations equipment at the various existing quarry or other previously developed sites within the permit area while carrying out these activities in the area;
- To access water sources, as approved, for the ongoing maintenance and operations of the public highway system within the permit area;
- To have right of access and priority status within one kilometer (1000 m) left and right of the roadway centre line of the highway corridor for the purpose of quarry pit development and drainage channel construction; and,
- To conduct geotechnical investigation in the search for gravels and rock and for gathering preliminary engineering information for the design of foundations for roadways, bridges and other structures (as required).

3 Definitions

Under the authority of the *Environmental Protection Act* (EPA), the GNWT has produced a series of environmental guidelines for the management of specific hazardous wastes commonly produced on similar projects. The Environmental Guideline for Hazardous Waste (GNWT 2017) provides definitions of the terms used in the EPA and describes the acceptable waste management practices. The following definitions are particularly important to this document.

3.1 Hazardous Waste

A contaminant is a dangerous good that is no longer used for its original purpose and is intended for recycling, treatment, disposal or storage.

A 'hazardous waste' does not include a contaminant that is:

- Household in origin;
- Included in class 1 (explosives) or class 7 (radioactive materials) of the Transportation of Dangerous Goods Regulations (TDGR);
- Exempted as a small quantity;
- An empty container; or
- Intended for disposal in a sewage system or by land filling that meets the applicable standards set out in Schedules 1, III or IV of the Guideline for Industrial Waste Discharges in the NWT.

3.2 Empty Container

A container that has been emptied, to the greatest extent possible, using regular handling procedures, but its contents shall not exceed 1% of the container's original capacity or 2 litres (L), whichever is less. This does not include containers which previously contained mercury, or Class 2.3, 5.1 or 6.1 materials of TDGR.

3.3 Small Quantity

Hazardous wastes are considered to be small quantities if it is generated in an amount that is less than 5 kilograms (kg) per month if a solid or 5 L per month if a liquid; and where the total quantity accumulated at any one time does not exceed 5 kg or 5 L. This does not apply to wastes that are mercury or in Class 2.3, 5.1 or 6.1 of the TDGR. These wastes must be generated in an amount less than 1 kg per month if a solid or 1 L per month if a liquid; and where the total quantity accumulated at any one time does not exceed 1 kg or 1L.

3.4 Sump

A man-made pit or natural depression in the earth's surface used for the purpose of depositing Waste that does not contain Toxic Material, such as non-toxic Drilling Waste.

4 Identification of Waste Types

Over the course of operations and maintenance, several types of waste will likely be generated by equipment and crews working within the LUP's right of way. The primary type of waste will include non-mineral wastes; however, some hazardous wastes may be generated. The types of waste anticipated to be generated are outlined below.

Segregated Waste Streams

Waste Stream	Description	Handling Method	Disposal Method
Domestic wastes (organic and non-organic)	Organic and non-organic waste including garbage, rubbish or food scraps	Place in odour proof secure waste containers, minimizing wildlife attractants.	Waste will be progressively removed from the Project work sites and disposed of at an approved solid waste facility.
Cleared vegetation	Minimal vegetation clearing is expected as all maintenance and operations will occur within the already established highway alignment.	Slashed trees and shrubs with possible grubbing, brush will be mulched along the alignment. If required, trees will be hand fallen.	If cut, brush will be windrowed along the alignment. If cut, trees will be used as firewood for a community.
Sewage* *No sewage is anticipated for Highway #1 O&M work, however the following handling and disposal methods will be followed if sewage is generated	Grey/black-water	Stored in a portable washroom facility during the Project.	Will be removed from the Project work sites and disposed at an approved sewage disposal facility or in a sump.
Drill Cuttings from geotechnical works	Solid materials, such as rock fragments, that are brought to the surface during auger or core drilling.	To be placed back into the original borehole from which it was generated, or disposed of in sumps if thermistors are to be installed.	Placed back into the original borehole from which they were generated in order to minimize cross contamination of borehole sites.

Potential hazardous wastes generated on-site include waste oil, fuel, lubricants, oil filters, solvents, etc., from use and maintenance of heavy equipment. Other potential wastes may include contaminated soil, snow or water should a spill occur during Project activities. Although not anticipated, the Project may also generate other non-project specific wastes. These wastes are outlined in Table 4-2 below.

Other Potential Waste Streams

Waste Stream	Description	Handling Method	Disposal Method
Wastes generated during spills (including hydrocarbon containers, absorbents, contaminated snow/water)	Contaminated materials with fuel (gasoline or diesel), oil, lubricants, solvents, antifreeze	Place contaminated materials in appropriate storage containers.	Soils or liquid residue will be removed by registered hazardous waste carrier to an approved disposal facility.
Animal carcasses associated with collisions during the Project	Dead or decomposing animal parts	No storage of animal carcasses will be allowed at the Project work sites.	Animal carcasses will be removed and disposed as directed by the GNWT Department of Environment and Climate Change
Batteries (lead acid and alkaline)	From personnel and equipment	Place in appropriate containers	Removed and disposed of at an approved disposal facility.

4.1 Non-Hazardous Wastes

Within the alignment of the Highway #1, the non-hazardous waste generated will primarily include domestic waste generated during the drilling program. The potential environmental effects arising from unmanaged non-hazardous waste include increased wildlife attractants, a change in the aesthetics to the area, degradation of water quality, and degradation of wildlife habitat.

4.2 Sewage

No sewage is anticipated to be created as a result of the O&M work along Highway #1.

If for some unanticipated reason sewage needs to be generated for the O&M work, portable washroom facilities will be utilized by Project personnel. Upon completion of the Project, Wastewater (sewage and grey water) will be collected in a heated and insulated holding tank, and transferred to an approved facility for disposal, subject to community approval and capacity at local facilities.

The potential environmental effects arising from unmanaged sewage wastes include degradation of soil quality, degradation of water quality, degradation of wildlife habitat, and harm to on-site personnel.

4.3 Hazardous Waste

While it is expected that vehicle maintenance will occur in existing facilities within communities, there may be occasions where equipment requires servicing in the field. Wastes associated with these maintenance activities may include used oil filters, used oil, etc. Other potential hazardous wastes may include contaminated soil, snow or water and sewage if a spill occurs during the Project.

The potential environmental effects arising from unmanaged hazardous wastes include degradation of soil quality, degradation of water quality, degradation of wildlife habitat, and harm to on-site personnel.

5 Waste Management Facilities

Various types of wastes could be generated under this LUP. It is essential that these wastes are handled, stored and managed in a safe and environmentally responsible manner.

Contractor will select the types of fuels and fuel storage tanks to meet the needs of the Project as well as any storage tank volumes and locations. INF expects that diesel and gasoline will be the two primary fuels used, each sourced from existing fuel tanks. Diesel will be used for mobile equipment and vehicles. Gasoline will be required, depending on the type of vehicles and some small equipment that are used.

INF expects that the external fuel tanks will include: fuel tanks mounted in the back of pickup trucks for refuelling mobile equipment and vehicles at the Project sites. No fuel storage tanks will be stored on sites. All fuel tanks used will meet regulatory requirements.

All waste management facilities are subject to community approval and capacity to access and handle different types of waste. INF will confirm with individual communities and seek the appropriate approvals for waste disposal depending on the nature of the operations and maintenance projects conducted under this LUP.

6 Management of Waste Types

This section of the plan describes the general procedures and principles that are to be followed by site personnel in handling and storing wastes. The waste management program will attempt to minimize waste production by applying the principles of reducing the use of materials, reusing materials whenever possible, recycling materials and recovering value from used materials. Additional programs for handling, disposal and recycling of other wastes will be developed as needed. The subsections listed below deal with specific wastes that may be encountered during the Project.

6.1 Non-Hazardous, Non-Mineral Wastes

During the Project, the following management and mitigation techniques will be implemented to reduce the potential for environmental effects associated with non-hazardous, non-mineral wastes.

6.1.1 Drill Cuttings

Drill cuttings that are not backfilled into boreholes will be disposed of in sumps located either off to the side of the road. The sump(s) will be located in an area that is a natural depression and a minimum of 100 m from any water body. No sumps shall be located within 100 m of the Ordinary High Water Mark of any Watercourse, unless otherwise authorized in writing by an Inspector.

6.1.2 Domestic Wastes

Waste management practices will be implemented that minimize attractants to wildlife, including:

- Minimizing and properly disposing of garbage, food wastes and other edible and aromatic substances into odour-proof secure containers (wildlife-proof).

- Separating recyclables such as beverage containers, plastics, alkaline batteries and possible electronics for proper disposal offsite.
- Organizing wastes into containers with secure lids to store onsite. This material will then be progressively removed from site throughout construction operations.
- Ensuring work crews inspect work areas and collect and properly dispose of any waste that may have been discarded.

6.1.3 Vegetation

Vegetation will be mulched or windrowed on the alignment and cut lines.

6.2 Hazardous Waste

INF is responsible for the proper management and disposal of hazardous waste generated on the Project site either directly by INF or by its contractors. As a result, any and all hazardous waste that is managed by the Contractor will be submitted under INF's registered generator of hazardous waste number 'NTG001'. The Contractor will be responsible for completing and managing the hazardous waste movement documents according to the Guideline for the General Management of Hazardous Waste in the NWT (ENR 2017), while maintaining contact with INF to ensure proper management of the waste.

If hazardous materials and wastes (fuels, oils and lubricants) are transported onto the alignment, they will be stored within secondary containment at least 100 m away from the high water mark of any watercourses, as per the Spill Contingency Plan (SCP) for the Project. Any hazardous wastes will be stored in clearly marked containers with lids (i.e., drums) and in clearly marked areas (e.g. signs and flagging). Containers will be kept clear of debris and snow to facilitate route inspections for leaks. Hazardous wastes will be removed from the designated storage area as often as possible, but at the end of the Project at a minimum. Wastes will be transported to an approved facility for treatment/disposal. If other contaminated materials require disposal (i.e. spill pads), these will be disposed of through a licensed facility. On behalf of the INF (the waste generator), the Contractor will complete the appropriate waste manifest to fulfill TDGR requirements and the requirements of the Guideline for the General Management of Hazardous Waste in the NWT. Any contaminated snow, soil, and/or water will also be transported to an approved facility for treatment/disposal.

6.2.1 Sewage

Sewage will be transported to a disposal facility pending community approval or disposed of in a sump located further than 100m from the ordinary high water mark.

6.2.2 Contaminated Soils and Snow

Contaminated soils and/or snow as a result of hydrocarbon spills or other spill material is anticipated to be minimal as all site personnel will be familiar with the Project's SCP and will follow proper safe operating procedures.

In the event that a spill should occur, it is expected that contaminated soils/snow will be picked up and placed in suitable storage containers (i.e. drum). The wastes will be removed from the Project worksites by a registered hazardous waste carrier and disposed of at an approved facility. Should a larger spill occur, a secondary containment structure or lined facility which may be required.

6.2.3 Waste Oils

Waste oil will be stored in containers suitable for that purpose. Other waste types, such as antifreeze or solvents will not be stored in the same container as waste oils.

6.2.4 Used Filters

Used filters will be temporarily stored in filter containers and will then be disposed of at an approved registered facility.

6.2.5 Used Hydrocarbon Containers and Absorbents

Used hydrocarbon containers, absorbents or rags produced onsite, along with any used spill response materials, such as fibre pads or granular absorbents ('floor dry') will be placed in appropriate containers and disposed at an approved disposal facility in accordance with regulatory requirements.

6.2.6 Animal Carcasses

If encountered, animal carcasses will be removed from the Project work sites through discussions with the Department of Environment and Natural Resources (ENR).

6.2.7 Batteries

Lead acid batteries and alkaline batteries will be placed into appropriate containers and disposed of at an approved registered facility.

7 References

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Environment and Natural Resources (ENR). 2003. Used Oil and Waste Fuel Management Regulations – Plain Language Guide. GNWT. Yellowknife, NT. Retrieved January 2016 from: http://www.enr.gov.nt.ca/sites/default/files/guidelines/used_oil_guide.pdf.

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Mackenzie Valley Land and Water Board (MVLWB). 2011. Guidelines for Developing a Waste Management Plan. MVLWB, Yellowknife, NT. Retrieved August 2014 from: http://mvlwb.com/resources/policy-and-guidelines.

TDIC HRN Contracting Joint Venture. DOT. Tetra Tech EBA. 2015. Construction of the Norman Wells to Canyon Creek Access Road: Waste Management Plan.

8 Appendices

8.1 Appendix A: Maps