

K'átł'odeeche First Nation – Phase II Environmental Site Assessment

Waste Management Plan 1.0

August 2022

Table of Contents

1	Introduction.....	1
1.0	Purpose, Scope & Objectives	1
1.1	Project Area Description & Activities	1
1.2	Revisions.....	2
1.3	Project Contacts	2
1.4	Responsibilities.....	3
1.5	Legislation, Guidelines and Policy.....	4
2	Waste Management.....	1
2.1	Waste Locations.....	1
2.2	Waste Types	2
2.3	Food Waste/Domestic.....	2
2.4	Soil Cuttings.....	2
2.5	Purge Water	3
2.6	Hazardous Waste – Hydrocarbon	3
2.7	Inert Waste	3
3	Training, Inspections, Reporting, Records	4
3.0	Training.....	4
3.1	Inspections.....	4
3.2	Records and Reporting.....	4
4	References.....	4

List of Tables

Table 1 - Key Project Contacts.....	3
Table 2 – Waste Generation Source, Volume and Potential Impacts	2

List of Figures

Figure 1 Flow Chart of Waste Management Hierarchy.....	1
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Appendices

Appendix A – Drilling Locations

Appendix B – Waste Approval Communications

Abbreviations

APEC	Area of Potential Environmental Concern
ESA	Environmental Site Assessment
GNWT	Government of the Northwest Territories
KFN	K'átł'odeeche First Nation
LUP	Land Use Permit
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	Mackenzie Valley Resource Management Act
NT	Northwest Territories
WMP	Waste Management Plan
WMP	Waste Management Plan

1 Introduction

1.0 Purpose, Scope & Objectives

The purpose of this Waste Management Plan (WMP) is to identify measures to reduce, recycle, treat, and dispose of wastes associated with K'át'odeeche First Nation's (KFN's) proposed Phase II Environmental Site Assessment (ESA) program (the Project), in accordance with permits, applicable regulations, guidelines, and best practices. The overall goal of the WMP is to inform waste management practices of the Project in relation to interactions with the natural environment.

KFN has secured Stantec Consulting Ltd. (the Contractor) to assist with the Phase II ESA work within its reserve lands. The Project will require mechanical drilling of boreholes at several locations, 10 of which will be completed as monitoring well installations. The boreholes and monitoring wells will be used to conduct soil sampling and/or groundwater monitoring and sampling.

The WMP is intended to guide site personnel on the waste management objectives and procedures to be followed during operation and closure of the Project. The WMP objectives are:

- Reduce and manage the effects of waste on the environment.
- Provide the necessary direction for site personnel on how to meet waste management responsibilities that originate from legislation, guidelines and the Project Land Use Permit (LUP).
- Provide direction on role responsibilities, controls, procedures, training, communication, inspection, corrective actions as applicable to managing waste at the Project site.

1.1 Project Area Description & Activities

The reserve lands of KFN encompasses 52 square miles located on the south shore of the Great Slave Lake in the Northwest Territories (NT). The closest neighbouring community is Hay River, NT. The natural environment is characterized by the Hay River, within the Slave River and Hay River lowland ecoregions, and edges on the Boreal Plains and Taiga Plains ecozones.

KFN has undertaken a Phase I ESA of its reserve land; the Phase I ESA recommended a Phase II ESA. The work is being undertaken to support the transfer of land administration and management from the Government of Canada to KFN. In general accordance with the Framework Agreement on First Nations Land Management, determination of the environmental condition (environmental liability) associated with the subject lands located within the Hay River Dene Reserve #1 (the Site) is required. As a result, KFN and its appointed Contractor will undertake a Phase II ESA consisting of borehole drilling and monitoring well installations at areas of potential environmental concern (APECs).

The Project will require an estimated 34 drill locations (boreholes), 10 of which will be completed as monitoring well installations (see Appendix A). The boreholes and monitoring wells will be used to conduct soil sampling and groundwater monitoring and sampling. Open boreholes will be backfilled with bentonite following soil sampling. The monitoring well completion depths will be dependent on subsurface conditions and will be determined at the time of assessment; however, are anticipated to be within the upper 6 m of surface. Monitoring wells will be used for monitoring and sampling for 1 year, unless monitoring results suggest that ongoing monitoring is required. Following the sampling program, the monitoring wells will be decommissioned (sub-surface materials removed) and backfilled with bentonite.

The Project will use a track-mount drill rig. There is no water use required for the drill. If equipment availability is limited, an alternative truck-mount drill could be used. The drill will be required to operate for 1-2 hours per location and will occur over 7 days during October 2022. The Project will not produce significant waste volumes. Drill cuttings and purge water will be retained in soil bags and drums, respectively, which will be disposed at an approved facility pending analytical results. Any other waste (i.e., plastics, cardboard) can be accommodated for at the local landfill and will not occur in a significant volume. Lastly, fuel storage is not a project requirement. The only fuel on site will include that which is required by the equipment to operate.

1.2 Revisions

This WMP was developed based on the Mackenzie Valley Land and Water Board Guidelines for Developing a Waste Management Plan. The WMP will be reviewed in conjunction with any major changes to the Project. A summary of WMP revisions is found on page i. The WMP will become effective once the associated LUP is approved by the Mackenzie Valley Land and Water Board (MVLWB), thus commencing the Project. The Project is anticipated to commence in mid October 2022.

1.3 Project Contacts

In the event of a waste management inquiries related to the Project or the contents of this plan, the following key contacts include:

Primary KFN contact:

Victoria St. Jean
 Lands Manager,
 K'átł'odeeche First Nation
 100 Reserve Highway
 PO Box 3060
 Hay River Dene Reserve, X0E 1G3

 Phone: 867-874-6701
 Fax: 867-874-3229
 Email: kfnlands@katlodeeche.com

Primary Contractor contact:

Marshall Pachal
 Project Manager
 Stantec Consulting Ltd.
 100-75 24th Street East
 Saskatoon, SK S7K 0K3

 Phone: 306-667-2433
 Email: Marshall.pachal@stantec.com

1.4 Responsibilities

This WMP applies to KFN, the Contractor and its subcontractors for all aspects of the Project. The Project Owner is KFN. Table 1 presents the key Project contacts should an inquiry or notification related to waste management occur.

Table 1 - Key Project Contacts

Who	Responsibility
KFN	<ul style="list-style-type: none"> • Comply with the land use permit • Liaise with Government of the Northwest Territories (GNWT) Lands Inspector, government agencies, public and Indigenous organizations (as required) • Oversee contractors and ensure they uphold all environmental obligations related to the Project work
Contractor (Stantec)	<ul style="list-style-type: none"> • Implement this WMP under the direction of KFN • Maintain records associated with waste incidents • Make personnel, equipment, and materials available, as required • Take appropriate response measures • Supervise the subcontractor • Supervise the contractor team • Ensure this WMP is available on site at all times • Ensure personnel are trained and competent in the WMP application • Ensure the measures in the WMP are adequately applied • Coordinate mitigative and remedial measures where required • Conduct regular worksite inspections • Liaise with Project Inspectors

Table 1 - Key Project Contacts

Who	Responsibility
Drill Contractor (TBD)	<ul style="list-style-type: none">• Take appropriate waste management and response measures• Review, understand and apply the WMP during all work operations• Participate in waste management training• Report waste management issues to the contractor immediately

1.5 Legislation, Guidelines and Policy

This plan has been developed in consideration of the applicable legislation and guidelines, including:

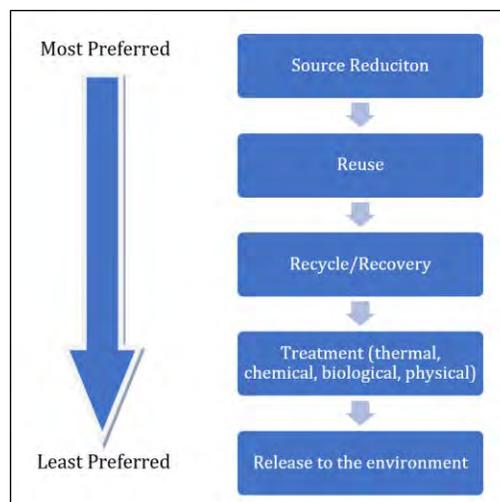
- Northwest Territories Environmental Protection Act and regulations
- Mackenzie Valley Resource Management Act (MVRMA) and Land-Use Regulations
- MVLWB's Guidelines for Developing a Waste Management Plan
- Northwest Territories Water Act and Regulations
- Guideline for Hazardous Waste Management

2 Waste Management

Waste management will be handled via the Waste Management Hierarchy (Figure 1). Primarily, the waste generated by the Project will be reduced through selection of supplies and materials and project planning. Waste will be managed at the Project site to the extent practicable to minimize the need for waste disposal via application of the waste management hierarchy which demonstrates the most preferred disposal methods arranged from most preferred to least preferred. Labelled waste receptacles or storages will be established at the Project work locations. All wastes will be segregated by type to facilitate appropriate waste storage, handling, transfer and disposal actions.

The Project does not have camp wastes such as sewage or greywater. Other wastes, such as recyclables and hazardous wastes (i.e., oil containers, oily rags, drill cuttings, purge water) will be disposed of using an accredited waste transfer company if necessary following analytical test results.

Figure 1 Flow Chart of Waste Management Hierarchy



2.1 Waste Locations

The Project site has several key work sites where the environmental drilling program will occur for approximately 1-2 hours at a time for each sampling location (see Appendix A for proposed work locations). Waste will be managed and contained by on site personnel, as appropriate. The waste management approach will be composed of: 1 container for soil cutting bags; 1 storage container purge water; 1 drum for hydrocarbon related waste; 1 bag for landfill waste; and 1 bag for inert wastes. The soil and water containers will be stored each respective site (waterproof, weather proof and secured), until such time that disposal is scheduled.). All other wastes will be disposed of at the Hay River landfill. See Appendix B for confirmation communication with waste management service providers.

2.2 Waste Types

The following waste types may be generated by the Project:

- Food Waste/Domestic (Project personnel lunches)
- Hazardous Waste (used oil containers, oily rags, hydraulic hose, drill cuttings, purge water)
- Inert Waste (scrap metal, rubber (tires, hoses), plastics (not food related) and wood (palettes, lumber)

Table 2 – Waste Generation Source, Volume and Potential Impacts

Waste Type	Source	Volume	Potential Impacts
Food Waste/Domestic	Project personnel meals	10lbs for project	Wildlife attractant
Hazardous Waste (potentially – depending on analytical results)	Soil cuttings – borehole drilling	2-3 soil bags (3.6-5.4 m ³) per day	Soil contamination, leachate
Hazardous Waste (potentially – depending on analytical results)	Purge water – monitoring well development and purging	200-230 litres per day	Soil contamination, leachate
Hazardous Waste - hydrocarbon	Oily rags, used oil containers, hydraulic hose	10 lbs for project	Soil contamination, leachate
Inert Waste	Materials resupply	Estimated standard garbage bag per day (est. 60L bag)	Littering, effects to wildlife

2.3 Food Waste/Domestic

Food and domestic wastes may be generated by the Project and could include items such as food wrappers. All scent attractant food waste will be stored in a labelled garbage bag to be disposed of at the end of each day at the KFN office or drilling contractor’s dumpster.

2.4 Soil Cuttings

Soil cuttings will be generated as an aspect of borehole drilling activities. Site personnel will bag, contain and store the cuttings in bags at each location and placed into a tote for storage until analytical results confirm if contaminants are present. Any bags containing contamination will be disposed by a waste receiver..

2.5 Purge Water

Water sampling will require purging activities for each well location. Purge water will be collected and transferred to collection container by Project personal. Site personnel will contain and store the purge water at each by location. The container will be stored at the sample site until analytical results (typically petroleum hydrocarbons, metals and glycol, but may vary by APEC) confirm if contaminants are present. Any water results showing contamination will be disposed of by a waste receiver.

2.6 Hazardous Waste – Hydrocarbon

The mechanized drill rig could generate hydrocarbon-based waste such as oil containers, oily rags or possibly hydraulic hose due to malfunctions. These materials will be placed into a sealed drum for safe containment. Drums will be disposed of by a waste receiver.

2.7 Inert Waste

Inert wastes will be generated by the Project. Examples of this waste type may include scrap metal, rubber (tires, hoses), plastics (not food related) and wood (palettes, lumber). Plastics may be generated by sampling equipment (gloves, filters, tubing, markers, tape, plastic bags, containers). This waste will be collected, separated, and stored in standard sized garbage bags, to be disposed of regularly or as needed at the Hay River landfill.

3 Training, Inspections, Reporting, Records

3.0 Training

All Project personnel will receive training on the purpose and procedures provided in this WMP.

All personnel will receive training in safe work procedures related to storage and handling of wastes described in the WMP.

3.1 Inspections

On-site inspections concerning waste handling, storage, transportation, and disposal is required to be conducted by the Contractor.

- Waste inspections will confirm the amount and types of waste being stored to verify record keeping accuracy.
- Daily general site monitoring will identify and correct for instances of mismanaged waste or related infractions.
- All inspections and monitoring information will be documented.
- In the event of non-conformance, corrective action will be taken and documented.

3.2 Records and Reporting

Prior to disposal, the Project Contractor will track the volume of wastes generated by the Project. Waste tracking will be done via receipt/invoicing from either the Hay River landfill or KBL Environmental. These records can be provided to the Inspector if requested.

4 References

- GNWT. 2015. Northern Land Use Guidelines, Camp and Support Facilities. Accessed from:
https://www.lands.gov.nt.ca/sites/lands/files/resources/nlug_camps_2015_english_16_sept_2015.pdf
- GNWT. 2017. Guideline for Hazardous Waste Management. Accessed from:
https://www.enr.gov.nt.ca/sites/enr/files/resources/128-hazardous_waste-interactive_web_0.pdf
- GN. 2012. Environmental Guideline for the Burning and Incineration of Solid Waste. Access from:
https://www.gov.nu.ca/sites/default/files/guideline_-_burning_and_incineration_of_solid_waste_2012.pdf
- MVLWB. 2011. Guidelines for Developing a Waste Management Plan. Accessed from:
https://mvlwb.com/sites/default/files/documents/MVLWB-Guidelines-for-Developing-a-Waste-Management-Plan-Mar-31_11-JCWG.pdf

Appendix A
Drilling Locations

KFN Phase II ESA Proposed Drilling Locations

Location	Approximate Coordinates	Boreholes	BH Depth (m)	Monitoring Wells	MW Depth (m)
Area 1	60° 45' 14.27" N, 115° 48' 45.58" W	3	3	0	-
Area 2	60° 45' 17.06" N, 115° 42' 30.53" W	5	3	0	-
Area 5	60° 50' 07.96" N, 115° 45' 24.93" W	7	6	4	6
Area 6	60° 50' 05.43" N, 115° 45' 34.26" W	6	4.5	3	4.5
Area 8	60° 50' 06.87" N, 115° 45' 38.35" W	3	6	1	6
Area 19	60° 50' 00.19" N, 115° 46' 04.71" W	3	6	1	6
Area 21	60° 50' 55.25" N, 115° 43' 20.87" W	5	6	1	6
Area 26	60° 50' 55.25" N, 115° 43' 20.87" W	2	4.5	0	-
Totals:		34	-	10	-

Appendix B
Waste Approval
Communications

From: [Kennah, Michael](#)
To: [Pachal, Marshall](#)
Subject: FW: Soil and Water Disposal Rates
Date: Tuesday, August 16, 2022 12:41:43 PM

[Marshall,](#)

[Soil/water acceptance and rates provided below. I am still waiting on Hay River Disposal but Clayton is aware that we are looking for this should return my request today.](#)

[Mike](#)

From: Jeff Bembridge <jbembridge@kblenv.com>
Sent: Tuesday, August 16, 2022 3:07 PM
To: Kennah, Michael <Michael.Kennah@stantec.com>
Cc: Stacey Walker <SWalker@kblenv.com>
Subject: RE: Soil and Water Disposal Rates

Thanks Mike.

Pricing as follows:

- PHC Impacted Soil Disposal: \$285/megabag or \$180/drum
- PHC Water Disposal: \$525/tote
- Tote Supply: \$200/ea
- UN approved drum supply: \$135/ea
- UN Approved Self Standing Lined Bag Supply: \$50/ea

This pricing is FOB Yellowknife, if you can confirm or tell me a budget volume or quantity I can put some budget figures in for freight. If it was based on 20 x bags from YK to Yellowknife(new supply freight) and 20 x full bags south for disposal, I would expect somewhere around \$2,000 for a budget figure. I should have totes available locally however there could be a small delivery fee if you can't pick them up and dependant where they need to be delivered in Hay River.

Let me know if you would prefer a formal quote or if this works for now.

Regards,

JB

Jeffrey Bembridge

Operations Manager

m: 867.444.9314

p: 867.873.5263

f: 867.669.5555



Box 1895, 17 Cameron Road,
Yellowknife, NT X1A 2P4

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From: Kennah, Michael <Michael.Kennah@stantec.com>

Sent: August 16, 2022 11:27 AM

To: Jeff Bembridge <jbembridge@kblenv.com>; Doug Dawley <ddawley@kblenv.com>; Katie Oliver <koliver@kblenv.com>

Subject: RE: Soil and Water Disposal Rates

Yes, I was thinking we would either bag or drum them.

Mike

From: Jeff Bembridge <jbembridge@kblenv.com>

Sent: Tuesday, August 16, 2022 2:18 PM

To: Kennah, Michael <Michael.Kennah@stantec.com>; Doug Dawley <ddawley@kblenv.com>; Katie Oliver <koliver@kblenv.com>

Subject: RE: Soil and Water Disposal Rates

Hey Mike,

We can accept – given the volume would it be possible to bag the soils? Let me know on this and we can provide rates right away.

Thanks,

JB



Jeffrey Bembridge

Operations Manager

m: 867.444.9314

p: 867.873.5263

f: 867.669.5555

Box 1895, 17 Cameron Road,
Yellowknife, NT X1A 2P4

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From: Kennah, Michael <Michael.Kennah@stantec.com>

Sent: August 16, 2022 10:39 AM

To: Doug Dawley <ddawley@kblenv.com>; KBLenv.com - Info <info@kblenv.com>; Jeff Bembridge <jbembridge@kblenv.com>; Katie Oliver <koliver@kblenv.com>

Subject: RE: Soil and Water Disposal Rates

Hello,

Checking in to see if you are able to receive the quantities described below.

Thanks,

Mike

Mike Kennah, M.A.Sc

Environmental Scientist, Environmental Services

130 Somerset St.

Saint John, NB E2K 2X4

Direct: 506-634-2185

Mobile: 506-565-1053

michael.kennah@stantec.com

From: Kennah, Michael

Sent: Friday, August 12, 2022 12:40 PM

To: Doug Dawley <ddawley@kblenv.com>; KBLenv.com - Info <info@kblenv.com>; Jeff Bembridge

<jbembridge@kblenv.com>; Katie Oliver <koliver@kblenv.com>

Subject: RE: Soil and Water Disposal Rates

Anticipating small volumes, maybe 20 m3 of soil and 0.5 m3 of water max.

Thanks,
Mike

From: Doug Dawley <ddawley@kblenv.com>

Sent: Friday, August 12, 2022 12:34 PM

To: Kennah, Michael <Michael.Kennah@stantec.com>; KBLenv.com - Info <info@kblenv.com>; Jeff Bembridge <jbembridge@kblenv.com>; Katie Oliver <koliver@kblenv.com>

Subject: RE: Soil and Water Disposal Rates

Hello Michael,

Do you have some additional information on anticipated volumes of each?

Depending on the volumes I have included two of our managers that would be best suited to provide costing.

Regards,

Doug

From: Kennah, Michael <Michael.Kennah@stantec.com>

Sent: August 12, 2022 9:32 AM

To: KBLenv.com - Info <info@kblenv.com>

Subject: Soil and Water Disposal Rates

Hello,

I have an upcoming drilling program in Hay River that may require disposal of hydrocarbon impacted soil and water. Is KBL able to receive this material, and if so, could you provide your disposal rates?

Thank You,

Mike Kennah, M.A.Sc

Environmental Scientist, Environmental Services

130 Somerset St.

Saint John, NB E2K 2X4

Direct: 506-634-2185

Mobile: 506-565-1053

michael.kennah@stantec.com