INUVIALUIT SIVUNNIUQPAIT IMAKKUN

INUVIALUIT WATER BOARD

**Hamlet of** Aklavik

**Water Licence Number:** N3L3-0570

# Solid Waste Disposal Facilities Operation and Maintenance Plan

**Date Prepared:** May 23, 2019

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## 1. Introduction

Name of the Hamlet: Hamlet of Aklavik

Location of the Hamlet - latitude and longitude in Degrees, Minutes and Seconds (DMS):

Latitude: 68 13'N

Longitude: 135 0"W

Present Population of the Hamlet: 623

Climate (a brief note such as mean July and January temperature)

Annual Daily Average = -8.@ C
July Daily Average = 14.1 C
January Daily Average = -26.9 C

Have approx. 11.5cm of rainfall and 158.6cm of snowfall annually

Attach a Map of the Hamlet

☑ **Attached a Map of the Hamlet (Appendix 1)**

## 2. Purpose

The purpose of this plan is to assist the Hamlet of Aklavik personnel with the operation and maintenance of their Solid Waste Disposal Facilities. This Solid Waste Disposal Facilities Operation and Maintenance Plan should act as the protocol reference in day-to-day Solid Waste Disposal Facilities operations. Therefore, it should be readily available for all facility staff at all times.

## 3. Solid Waste Disposal Facilities - Site Description

Global Positioning System (GPS) locations of Solid Waste Disposal Facilities (Note: Due to inconsistencies between individual GPS units, Google Earth latitude and longitude should be utilized as the GPS points):

Latitude (Degrees, Minutes, Seconds): 68 15'23.87"N

Longitude (Degrees, Minutes, Seconds): 135 00'03.99"W

Attach a location map of the Solid Waste Disposal Facilities including following features:

Map to include scale, north arrow, Hamlet, access road from Hamlet, nearby water bodies, location of groundwater monitoring wells, and other features (specify).

☑ **Attached a location map indicating above features (Appendix 2)**

Date of Commissioning of Solid Waste Disposal Facilities 1987 yyyy/mm/dd
(if date is unknown, estimate year)

What are the ground conditions relating to permafrost in and around the community in which the Solid Waste Disposal Facilities is located?

Definitions:

- **Permafrost** – Ground that stays frozen through the summer. There is a surface layer that thaws, but underneath the ground stays frozen. (There are other definitions, but for the following question, use this one.)
- **Continuous permafrost** – There is permafrost everywhere in the area.
- **Discontinuous permafrost** – (a) There is permafrost, but some areas thaw in the summer, or (b) there are some patches of permafrost, but most of the ground thaws in the summer.

☑ Continuous permafrost

☐ Discontinuous permafrost

☐ No Permafrost in area

**4. Solid Waste Disposal Facilities – Staff Contact Information**

Provide the name, contact information, and role for each staff member(s) responsible for Operation and Maintenance of Solid Waste Disposal Facilities:

| Name | Phone | Email | Role/Responsibilities |
|---|---|---|---|
| Fred Behens | 867-978-2351 | SAOAKlavik@permafrost.com | SAO |
| Dean Arey | 867-978-2351 | | Foreman |
| JD Storr | 867-978-2351 | | Heavy Equipment Officer |

## 5. Staff Training

Please indicate if any of the Solid Waste Disposal Facilities staff have the following training (current or expired): **(Check all that apply)**

☐ Ozone Depleting Substances (halocarbons, refrigerants) technician

Definition: A technician who is otherwise qualified to service refrigerant equipment and has successfully completed the environmental awareness training course for refrigerants offered by the Heating, Refrigeration and Air Conditioning Institute of Canada. (1-day classroom course in addition to be a qualified technician)

This is required for draining refrigerants from vehicles, air conditioners, fridges, and other equipment. Refer to ENR's document *Environmental Guideline for Ozone Depleting Substances (ODS's) and Halocarbon Alternatives,* available at: http://www.enr.gov.nt.ca/sites/enr/files/guidelines/guideline_for_ozone_depleting_substances_and_halocarbon_alternatives.pdf.

☐ Transportation of Dangerous Goods (TDG)

Everyone who handles, prepares for transport or carries dangerous goods must be trained and certified. Some of the common hazardous materials that may come into a Solid Waste Disposal Facilities are also dangerous goods. (Can be done online)

☐ Workplace Hazardous Materials Information System (WHMIS)

WHMIS training is required for any employee that requires this information to protect themselves from the hazards of the controlled products they handle at their workplace. (Can be done online)

☑ Waste Management

Training on municipal solid waste, solid waste collection, alternatives to solid waste, landfill operations and maintenance, regulatory requirements and occupational health and safety, such as the MACA School of Community Government Solid Waste Management course or through organizations such as Northern Alberta Institute of Technology (NAIT) and Solid Waste Association of North America (SWANA). (Classroom course)

☑ First Aid

First Aid training is recommended as a best practice for Solid Waste Disposal Facilities staff due to the inherent hazards of working at a solid waste site. (Standard First Aid is a 2-day classroom course)

☐ Hazardous Waste Operations and Emergency Response (HAZWOPER)

HAZWOPER training is recommended for larger sites, wherever practical. (40-hour classroom course)

☐ Other relevant training and courses:

Brief description of any other operator training program, and plans:

## 6. Security and Control

How is public access to the facility controlled? (**Check all that apply**)

- [x] No control
- [ ] Front gate locked when facility is closed
- [ ] Perimeter chain-link fence around entire facility
- [ ] Locked man-door
- [ ] Others(specify):

Is the following signage posted at the Solid Waste Disposal Facilities? **(Check all that apply)**

- [ ] Sign near the site entrance indicating the layout of the facility
- [ ] Telephone numbers for facility manager and local fire protection services
- [x] Sign at each waste, recycling, and reuse stockpile showing the items that should be placed there
- [ ] Hours of operation
- [ ] "No Burn" restrictions
- [ ] Tipping fee information
- [ ] List of material that are not accepted
- [x] Sign at each Surveillance Network Program (SNP) monitoring site
- [ ] Other (specify):

What fencing is installed at the site (aside from perimeter fencing identified above)? **(Check all that apply)**

☐ Wind fence down-wind of the active face to control litter

☐ Electric fence around areas that may attract animals, including decomposable waste storage

When is the electric fence typically activated?

From Month to Month

☐ Other (specify):

**7. Solid Waste Disposal Facilities Operations**

Hours/day of operation: no controls

Year landfilling began at the facility (estimate if not known): 1987

Is a weigh scale used at the facility?

☐ Yes ☑ No

Hazardous waste receivers are registered for the type of hazardous waste they are receiving (e.g., asbestos, batteries, contaminated soil, used oil). If you are unsure if your facility is registered as a hazardous waste receiver, please contact Hazardous Waste Management Specialist, Environment Division, the GNWT Department of Environment and Natural Resources at (867) 767-9236 extension 53187.

Is the facility registered to receive any hazardous wastes?

☐ Yes ☑ No

Is there a specific Site Operator?

☐ Yes ☑ No

If **"Yes"**, number of days per week operator is onsite: Hours per day:

If "**No**", how often does staff visit the facility? daily and weekly visits

Is heavy equipment used onsite (e.g. loader, excavator)?

☑ Yes ☐ No

If "**Yes**", list equipment:

Komatsu Loader and D6 Dozer

**8. Solid Waste Disposal Facilities Design**

Attach one of the following drawing options with the documents you are submitting. As-built drawings are preferred, if available. All drawings are required to have scales and north arrows (for plan views).

Indicate what type of drawings are attached (**Appendix 3**):

☐ As-built drawings of the Solid Waste Disposal Facilities signed and stamped by a professional engineer registered with Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG)

☐ Design drawings signed and stamped by a professional engineer registered with Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG)

☐ Scaled site plan with an air photo

☐ If engineering drawing is not available, provide schematics including north arrows, leachate flow direction, leachate outlet point and receiving water body and/or wetland and other features

Provide a general description of the Solid Waste Disposal Facilities design or indicate these items on the drawing. Identify locations of public drop-off areas, material stockpiles, and landfill cells. List compactors and balers. Describe buildings on site.

Solid waste is collected from Aklavik by truck and deposited at the Clearing Lake Solid Waste Facility (landfill) near the Sewage Lagoon. See **Figure 3-4** for a site plan of the landfill. There are no existing engineering drawings for the existing solid waste facility.
A local contractor, Michael Greenland, trucks Aklavik's solid waste to the landfill. Approximately four truckloads of solid waste are collected 3 times a week from Aklavik and taken 2 km north to the Clearing Lake landfill.
There is a gate at the entrance to the landfill site, located just past the tank farm. This gate is normally unlocked to prevent residents leaving garbage on the road if they can't access the landfill. The road continues a short distance past the landfill site to the sewage lagoon truck discharge area.
The Clearing Lake landfill is located east of the Clearing Lake Sewage Lagoon. The landfill is a ground-level site, with low berms surrounding the bulky metal waste to control runoff from these areas.
Proposed work to be started this summer.

Leachate is defined as water that percolates (flows) through the landfill. It picks up toxic chemicals on its way through the waste.

What systems are in place for leachate?

- [ ] Active leachate collection and treatment (i.e. engineered liners/covers)
- [x] Facility relies solely on natural attenuation of landfill leachate
- [ ] Other (specify):

If the facility has a liner, please indicate which types of liner are present:
**(Check all that apply)**

- [ ] High-density polyethylene (HDPE)/Polyvinyl chloride (PVC)/geomembrane/plastic liner
- [ ] Geosynthetic clay liner (GCL)
- [ ] Other (specify):

How is the liner monitored for leaks?

## 9. Accepted Materials

Identify the materials accepted at the Solid Waste Disposal Facilities and the disposal method for each.

Notes:

- **Segregated for reuse** means that items that are still in usable condition are set aside in a safe area for the public to search through and take home.
- **Shipped out for recycling or disposal** includes items that are stockpiled and backhauled when a large enough quantity has been built up. These items may be intended for recycling or to be landfilled, incinerated or otherwise disposed of offsite.
- **Burning** should be done in accordance with ENR's document *Municipal Solid Wastes Suitable for Open Burning* (*http://www.enr.gov.nt.ca/sites/enr/files/guidelines/solid_wastes_suitable_open_burning.pdf*), which provides specific conditions under which paper products, paperboard packaging and untreated, unpainted wood wastes may be burned. Other materials are not suitable for burning.

| Materials | Disposal Methods | | | | | | |
|---|---|---|---|---|---|---|---|
| | Not accepted | Landfilled at site | Segregated for reuse | Shipped out for recycling or disposal | Burned | Composted | Other (Specify) |
| Municipal Solid Waste (waste generated in the community with the exception of industrial process waste and agricultural waste) | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Construction, renovation, and demolition waste (waste generated in the community from construction, renovation and demolition activities with the exception of hazardous waste including asbestos) | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Scrap metal | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | located in seperate area |
| White goods (appliances such as refrigerators, stoves, microwaves, etc.) Note: Refrigerants must be removed. | ☐ | ☐ | ☑ | ☑ | ☐ | ☐ | |
| Tires | ☐ | ☐ | ☑ | ☑ | ☐ | ☐ | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Electronic waste | ☐ | ☑ | ☑ | ☑ | ☐ | ☐ | |
| Recyclables – Plastics | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Recyclables – Tin Cans | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Recyclables – Returnable Beverage Containers | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Recyclables – Cardboard | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Recyclables – Mixed Paper/Newspaper | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Recyclables – Glass | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Household hazardous waste (typical items include paint, batteries, leftover chemicals from households). | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Non-hazardous waste from the industrial sector within the community. | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Non-hazardous waste from the commercial sector within the community. | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Non-hazardous waste from the institutional sector within the community. | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Reusable goods (items that can be removed by the public for reuse, such as furniture) | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Clean wood and tree trimmings | ☐ | ☑ | ☑ | ☐ | ☐ | ☐ | |
| Mixed paper and cardboard | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | |
| Mixed solid waste | ☐ | ☐ | ☑ | ☐ | ☐ | ☐ | |
| Food and yard waste | ☐ | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Animal carcasses | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | separated from other material |
| Sewage Sludge (nutrient-rich organic materials resulting from the treatment of sewage at a sewage waste disposal facilities) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Other (Specify):<br>industrial and commercial azardous waste | ☑ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | |

If any items are shipped out of the community, how frequently is this done?

every three or four years,Mainly white metals and old barrels. Hopefully steel and old vehicles

If any items are shipped out, provide the following details:

| Materials | Quantity shipped out for recycling or disposal | Name of recycling or disposal facility | Location of recycling or disposal facility | Frequency and timing |
|---|---|---|---|---|
| Fridges, stoves, | 150 | KBL whitehorsse | Whitehores | 1time only |
| old fuel drums | 50 | KBL | Whitehorse | once |
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Briefly describe the about the contaminated soil and snow segregation and management from Solid Waste Disposal Facilities:

We do not have a contaminated soil area at he solid waste facility and are not planning one in the near future.

**10. Solid Waste Composition, Generation and Site Capacity**

This section provides an estimate of the amount of waste and recyclable materials being generated in the community, and the amount of space required at the Solid Waste Disposal Facilities to transfer and store these materials.

A typical composition of the solid waste in the Northwest Territories available on "Department of Municipal and Community Affairs, Government of the Northwest Territories. 2003. *Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories* - http://www.enr.gov.nt.ca/sites/enr/files/guidelines/solidwaste_guidelines.pdf; as following:

| Solid waste composition | % by weight |
|---|---|
| Food Wastes | 20.3 |
| Cardboard | 9.8 |
| Newsprint | 2.4 |
| Other Paper Products | 14.8 |
| Cans | 4.4 |
| Other Metal Products | 6.2 |
| Plastic, Rubber, Leather | 14.0 |
| Glass, Ceramics | 5.7 |
| Textiles | 3.8 |
| Wood | 9.9 |
| Diapers | 3.8 |
| Dirt | 4.9 |

Is waste being accepted from outside the community?

☐ Yes ☑ No

If **Yes**, describe outside sources and type of waste:

**Choose one** of the following methods to estimate the amount of waste generated in the community. Data from a study or other calculation is preferred. Weigh scale data can be used if no calculated value is available. The third option should only be used if no other data is available.

**Ensure the numbers you enter are in the correct units; they will be used to automatically calculate answers.**

The following questions will calculate the space required for waste over the next 10 years of the facility's life, based on assumptions about the level of compaction, the ratio of cover material to waste (assumed to be 1:5), and the projected population.

○ **Enter a number in kg/capita/day from a study, calculation or typical value**

kg/capita/day

Where did you get this number? Include title, author/consultant or other source name:

Is waste compacted on site?

○ Yes – Assume municipal solid waste (MSW) is 300 kg/m$^3$

Go to http://www.statsnwt.ca/ In the menu, find Population. Click Population Estimates. Find the link for Community Totals and look up the current population for your community. Next, click Population Projections. Find the population projection for your community **10 years from now**. (If the exact year you need is not listed, use the closest year.)

Current year population: _____ people

Population in 10 years: _____ people

**Calculated space required for the next 10 years:** 0 m$^3$

Is waste compacted on site?

○ No – Assume municipal solid waste (MSW) is 150 kg/m$^3$

Current year population: _____ people

Population in 10 years: _____ people

**Calculated space required for the next 10 years**: 0 m$^3$

○ **Calculate from weigh scale data**

Enter annual metric tonnage of waste received at facility: _____ tonnes/year

Enter population of geographical area described above: _____ people

Calculated rate: NaN kg/capita/day

Is waste compacted on site?

○ Yes – Assume municipal solid waste (MSW) is 300 kg/m$^3$

Current year population: _____ people

Population in 10 years: _____ people

**Calculated space required for the next 10 years:** NaN m$^3$

Is waste compacted on site?

○ No – Assume municipal solid waste (MSW) is 150 kg/m³

Current year population: _____ people

Population in 10 years: _____ people

**Calculated space required for the next 10 years**: NaN m³

◉ **No data available: Assume per capita waste generation rate of 2.5 kg/capita/day**

Is waste compacted on site?

◉ Yes – Assume municipal solid waste (MSW) is 300 kg/m³

Current year population: 623 people

Population in 10 years: 606 people

**Calculated space required for the next 10 years:** 22399.5 m³

Is waste compacted on site?

○ No – Assume municipal solid waste (MSW) is 150 kg/m³

Current year population: _____ people

Population in 10 years: _____ people

**Calculated space required for the next 10 years**: 0 m³

How much empty space is left in the facility (volume in $m^3$)? Either enter a volume from a topographical survey or enter measured dimensions of the empty space.

Surveyed volume of remaining empty space: _____ $m^3$

Enter dimensions of empty space in meters:

Length _____ m

Width _____ m

Depth/Height _____ m

Calculated Volume 0 $m^3$

NOTE: If your measurements are in feet, multiply by 0.305 to get meters.

e.g. 50 ft x 0.305 = 15.2 m

Is the remaining empty space larger than the space required for the next 10 years?

☐ Yes ☑ No

If there is not enough space for the next 10 years, what is the plan to deal with this?

Currently there is not enough empty space to continue using current site unless remodeling and expanding as well as removing materials as per our plan for 2019 attached

## 11. Solid Waste Collection and Handling

Briefly describe the solid waste collection and transportation systems to the Solid Waste Disposal Facilities (e.g. by trucks, number of trucks, collection and disposal schedule, timing, frequency):

Currently collection is done 3 days a week to all residents and commercial buildings. One pick up truck is used.

For trucked systems, provide the following information:

- Describe the group responsible for the collection and transport of solid waste to the Solid Waste Disposal Facilities (e.g. community staff, private contractor)

Slyck Enterprises has the 5 year contract to provide collection services to all residents and business within Aklavik

- How many days per week is solid waste collection done?

Three days a week collection is done

- Number of solid waste trucks available:

one 1/2 ton truck

- Capacity of each solid waste truck in L or $m^3$:

19.2m3

- Number of truckloads delivered to Solid Waste Disposal Facilities per week:

3 loads per week

- Annual volume collected by all trucks in L or $m^3$ or weight in tonne:

3045.12Mm3

How are hazardous wastes and other unacceptable substances kept out of the Solid Waste Disposal Facilities?

refuse to collect and contractors are told to remove from community.

What types of waste collection are done in the community? (**Check all that apply**)

☑ Door to door collection of Municipal Solid Waste (MSW)

Frequency of collection 3 times a week

☐ Collection of recyclables (door to door or centralized bins)

Frequency of collection

☐ Collection of compost (door to door or centralized bins)

Frequency of collection

☐ Bins for commercial/industrial waste

Frequency of collection

☐ Other waste collection (describe):

**12. Waste Screening**

Waste types that are not accepted at the Solid Waste Disposal Facilities need to be screened at the facility entrance. Unacceptable waste may include hazardous waste, or waste generated from the Industrial, Commercial, Institutional sector or by residents outside the community.

The following questions are about the waste screening methods used at the facility.

Does someone look at each load that comes in to the facility?

☐ Yes ☑ No

If **yes**, when is this done? (**Check all that apply**)

☐ At the entrance gate ☐ During dumping ☐ While waste is on the ground

☐ Other (specify):

What other screening methods and policies are used to prevent unacceptable waste entering the facility? (**Check all that apply**)

☐ More detailed investigations are done on random loads

☐ Written policy and procedures outlining frequency and steps taken for random load inspections

☐ There is a designation location for load inspection

☐ Method for removing and storing unacceptable waste from piles is defined

☐ The Solid Waste Disposal Facilities has the ability to check any suspicious loads at any time

☐ Other (specify):

## 13. Unacceptable Wastes

Once unacceptable waste has been encountered it is important to identify the generator. Industrial/commercial/institutional generators are required to transport their hazardous waste to registered receiving facilities according to the guideline for the *General Management of Hazardous Waste in the NWT.*

It is not suitable to have the hauler (carrier) remove the unacceptable waste if the,

- Original generator cannot be identified;
- Generator refuses to take responsibility; or
- Waste cannot be transported according to Department of Transport regulations (Transportation of Dangerous Goods Regulations).

If the generator is identified and refuses to take responsibility of the hazardous waste, they may be charged for the clean-up and proper management of the waste at the facility. It is important to keep good records of correspondence as well as the situation in which the unacceptable waste was encountered.

The hauler may not be responsible unless it can be demonstrated they knowingly transported the unacceptable waste to the Solid Waste Disposal Facilities. It is important to work with the hauler (carrier) to identify the generator. For advice in dealing with unacceptable or hazardous waste issues, contact your local or regional ENR office. If the local or regional office is not available, ENR Environmental Protection may be able to assist.

The methods for management of unacceptable waste are employed at the Solid Waste Disposal Facilities. (**Check all that apply**)

- [x] Notify appropriate municipal, territorial, or federal agencies
- [ ] Secure the waste to prevent contamination and disturbance
- [ ] Maintain records of date/time, conversations and conditions of incident
- [x] Cooperate with other regulatory agencies to handle the incident
- [x] Other (specify): ensure contractor removes material from site if dumped at site

Most municipal water licences do not authorize a community to accept waste from **outside of municipal boundaries** from industrial/commercial/institutional generators. Some licences may require written authorization from the inspector in order to accept this type of waste.
(**Check all that apply**)

- [ ] Does your community accept any waste from outside of municipal boundaries from industrial/commercial/institutional sector?
- [ ] Does your community have written authorization from the Inspector to accept this waste?
- [ ] Does your community have a written agreement with the generator(s) regarding types and volume of waste accepted and tipping fees?
- [ ] Other (Specify):

## 14. Record-Keeping for Unacceptable Wastes

Are records kept for unacceptable waste that arrives at the facility?

☐ Yes ☑ No

If **yes**, where are these records kept?

The following records are maintained:
**(Check all that apply)**

- ☑ Date and time of inspection
- ☐ Hauler (carrier) name and company
- ☐ Type and quantity of waste detected
- ☐ Generator of the waste
- ☐ Actions taken to manage unacceptable waste
- ☐ Name of personnel in charge of waste screening
- ☐ Other (Specify):

## 15. Landfilling Operations

Typical landfilling operations include placement of waste, compaction of waste, and placement of intermediate and final cover. Indicate which operations take place at this Solid Waste Disposal Facilities**: (Check all that apply)**

☑ Compaction of landfilled waste

How often is compaction done? 1 to 2 times a month

Lift thickness of waste compacted 1 m
(i.e. how deep is the waste usually piled up before compacting?)

Equipment used for compaction: D6 dozer and komatsu Loadre

☑ Placement of Intermediate Cover
(to limit wind-blown litter, potential for fires, wildlife access and to improve aesthetics)

Borrow source for intermediate cover: river silt

How often is intermediate cover placed? once a year

Thickness of intermediate cover placement: .5 m

Intermediate cover soil type (e.g. sand and gravel): river silt

Select the months when intermediate cover is placed: From August to August

☐ Placement of Final Cover
(placed when cells are no longer in use in order to limit infiltration, encourage re-vegetation, and limit burrowing animals)

Borrow source for final cover (if identified):

Final cover material (e.g. clay or synthetic material):

Thickness of final cover material to be placed: m

**16. Litter and Wildlife Control**

What strategies (other than cover placement and fencing) are used to reduce litter and manage wildlife at the facility? (**Check all that apply**)

☑ Routine litter cleanup

☐ Bird deterrents

☐ Other:

Briefly describe the provisions adopted to prevent of windblown debris:

Currently the solid waste site is surrounded by trees and willows that catch most wind blown material. Planning to install bear fencing this summer for better wild life control and building end fencing to use when we develop cells to place on the ends.

## 17. Surface Runoff Management

Surface runoff management is typically required at Solid Waste Disposal Facilities to minimize surface water contact with waste and to reduce the potential for erosion and ponding. Please indicate surface water management practices used at the facility: **(Check all that apply)**

- ☐ Perimeter ditches surrounding site to manage run-on
- ☐ Interior ditches and culverts to manage run-off
- ☑ Positive site drainage (1 to 2%) to minimize ponding

Describe the following, or show these items on a sketch or drawing:
- Locations of ditches or other surface water drainage structures
- Where surface water from drainage structures ends up (discharge location)
- Any locations where water collects as puddles or temporary ponds
- Where any water that isn't collected in drainage structures ends up

☐ **Drawing attached (Appendix 4)**

Description (for items not on drawing):

What is the distance to the nearest fish-bearing water body (lake, river, etc.)? 10 m

Briefly describe methods of retention and treatment of contaminated drainage from Solid Waste Disposal Facilities:

the area is has a berm encompassing site however some drainage does flow into the sewage lagoon untreated

Briefly describe the flood response measures including temporary alternate solid waste disposal practices, locations and mitigation measures:

The Hamlet has raised the road level from the community to the solid waste site, in case of flooding we will continue to use the facility and with the berm around the site we should be prepared for flooding.

## 18. Record-Keeping

Include the record keeping requirements related to Operation and Maintenance (O&M) of the Solid Waste Disposal Facilities and should be filed as an annual report with the Inuvialuit Water Board (IWB) no later than the date stipulated in the water licence for the previous year.

Record keeping requirements as specified in your water licence and to be included in the annual report are as following:

- A summary of monthly and annual quantities of solid waste received and landfilled.

  How and where is this recorded?

  do not maintain records of monthly or annual quantities received

  Where are these records kept?

  will be located in the Hamlet Office

- A summary of the monthly and annual quantities of hazardous waste stored on site and transported off site including the location and treatment or disposal plans for the remaining quantities.

  How and where is this recorded?

  not recorded

  Where are these records kept?

  they will be located at the Hamlet office when we start to record this

- Any problems, modifications or repairs done to the Solid Waste Disposal Facilities, including all associated structures.

  How and where is this recorded?

  not recorded

  Where are these records kept?

  will be at Hamlet office once we initiate recording

- Tabular summaries of all data generated under the "Surveillance Network Program (SNP)".

  How and where is this recorded?

  not recorded

  Where are these records kept?

  Will be at Hamlet office

- A list of spills and unauthorized discharges.

  How and where is this recorded?

  when they happen and recorded at the Hamlet office

  Where are these records kept?

  Hamlet office

- A description of any spill training and/or other operator training carried out.

  How and where is this recorded?

  no training to date

  Where are these records kept?

  no record

- A description of any closure and reclamation work completed during the year and an outline of any work anticipated for the next year.

  How and where is this recorded?

  no closure and covered teh site with material and leveled site

  Where are these records kept?

  at Hamlet Offce

- A description of any studies requested by the Board that relate to solid waste disposal or closure and reclamation and a brief description of any future studies planned.

  How and where is this recorded?

  no studies

  Where are these records kept?

  n/a

- Any updates and/or revisions to the approved Solid Waste Disposal Facilities Operation and Maintenance Plan.

  How and where is this recorded?

  May 23 , 2019 at Hamlet office

  Where are these records kept?

  Hamlet office

- Results of staff inspections on Solid Waste Disposal Facilities including all dams, berms, dykes and control structures authorized under this licence and any corrective actions, as necessary.

  How and where is this recorded?

  when occur and recorded at the Hamlet office

  Where are these records kept?

  Hamlet office

- All correspondence between the inspector and the Licensee.

  How and where is this recorded?

  When occurs at hamelt office

  Where are these records kept?

  at Hamlet office

- Any other details on waste disposal requested by the Board by November 1 of the year being reported.

  How and where is this recorded?

  N/A

  Where are these records kept?

  N/A

## 19. Inspection and Monitoring

Indicate how often the following items are inspected or monitored:

| Activities | Frequency | | | | | |
|---|---|---|---|---|---|---|
| | Not Applicable | Never | Daily | Weekly | Monthly | Other (specify) |
| Hydrocarbon contamination (e.g. oily sheen in surface water, visible stains and hydrocarbon odour near disposal areas) | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Signs of burrowing animals (e.g. droppings, holes around active or previous cells, animal sightings) | ☐ | ☐ | ☑ | ☐ | ☐ | |
| Signs of large mammals/birds (e.g. droppings, animal tracks, animals sightings) | ☐ | ☐ | ☑ | ☐ | ☐ | |
| Access road condition (e.g. potholes, erosion, rutting, ponding) | ☐ | ☐ | ☑ | ☐ | ☐ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Grading and reshaping of access road | ☐ | ☐ | ☐ | ☐ | ☑ | |
| Groundwater monitoring wells (e.g. condition of protective casing, protection from snow clearing activities, comparison of installation depth to current depth, ground subsidence surrounding protective casing) | ☐ | ☐ | ☐ | ☐ | ☐ | yearly by consultant |
| Ponded water throughout site | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Access control structure condition (e.g. damaged barriers, damaged entrance gate) | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Inspection of dams, dykes, berms and drainage courses | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Repair and maintenance of dams, dykes, berms and drainage courses | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Dead plants or other changes to vegetation near active and historical landfill cells | ☐ | ☐ | ☐ | ☑ | ☐ | |
| Signage (vandalism, general condition) | ☐ | ☐ | ☐ | ☐ | ☑ | |
| Voltage of electric fence, if applicable (i.e. significant changes in voltage from intended design) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| Vegetation growth and litter around electric fence, if applicable (may cause a short in the current flow) | ☑ | ☐ | ☐ | ☐ | ☐ | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Erosion on side slopes of active and closed cells and within surface water conveyance structures | ✓ | | | | | |
| Sedimentation and vegetation of drainage structures (e.g. blockage of culverts with gravel, plant growth in ditches) | ✓ | | | | | |
| SNP sampling | | | | | | Twice yearly |
| Inspection and maintenance of solid waste trucks | | | | ✓ | | |
| Other (Specify): | | | | | | |
| | | | | | | |

**20. Surveillance Network Program (SNP)**

Include the following information:

Sampling station number and description of the sampling stations as specified in your water licence:

0570-003

Parameters to be analyzed and maximum quality guidelines as specified in your water licence:

Frequency of the run-off water sampling at each sampling stations as specified in your water licence:

twice yearly

SNP sampling laboratory results submission requirements as specified in your water licence:

attached

Attach a map or drawing indicating the location of all Surveillance Network Program (SNP) sampling stations, with associated Global Positioning System (GPS) locations (Note: Due to inconsistencies between individual GPS units, Google Earth latitude and longitude should be utilized as the GPS points)

☑ **Attached a map of SNP sampling location (Appendix 5)**

Name, phone and email of the responsible person(s) for sampling, monitoring and reporting for the Surveillance Network Program (SNP):

| Name | Phone | Email | Role and responsibilities |
|---|---|---|---|
| Brandon McLeod | 867-978-2554 | | water plant operator and waste water monitor |
| Fred Behrens | 867-978-2153 | SAOAklavik@permafrost.com | SAO |
| | | | |

## 21. Tipping Fees

Indicate the waste categories for which tipping fees are charged:
**(Check all that apply)**

- [x] General Municipal Solid Waste (MSW)
- [ ] Household hazardous waste
- [x] Industrial/commercial waste (e.g. from contractors or businesses) not including hazardous waste
- [ ] Other (specify):

Indicate the hazardous materials for which tipping fees are charged:
**(Check all that apply)**

- [ ] Asbestos:
- [ ] Lead-acid batteries:
- [ ] Glycols
- [ ] Hydrocarbon-contaminated soil, snow, or water
- [ ] Mercury-containing equipment
- [ ] Oily debris
- [ ] Ozone-depleting substances (refrigerants)
- [ ] Paints
- [ ] Propane tanks
- [ ] Fuel tanks and drums containing fuel residues
- [ ] Vehicles Containing Batteries, Fluids and Mercury Switches
- [ ] Other (specify):

## 22. Safety Procedures

Personnel working in and around the solid waste and Solid waste disposal facilities should be equipped with the necessary personal protective equipment (PPE) to complete their jobs in a safe manner. PPE and safety items that should be maintained onsite include:

- Approved safety boots for solid waste facilities;
- Eye goggles;
- Gloves;
- Eye wash station;
- First aid kit;
- Fire extinguisher as approved by the Fire Marshal; and
- Work coveralls.

The following safety procedures should be obeyed in order to minimize health risks to personnel working in and around solid waste facilities:

- Equipment is to be kept clean;
- Protective clothing such as gloves, eye goggles and boots should be worn at all times;
- Work clothes must be kept in a designated change room and employees are to change into them when they arrive for work. Work clothes must NOT be worn home. The Hamlet's PW&S maintenance garage should be equipped with laundry facilities to wash work coveralls onsite; and
- Hands to be washed frequently; as a minimum before eating and after work.

## 23. Bear Safety

Solid waste disposal facilities are an attractant for a number of wildlife species, especially bears. For this reason, it is imperative that all personnel working in and around the solid waste site be properly trained in bear safety. For information on polar bear safety please refer to the Parks Canada document *Safety in Polar Bear Country* from the website:
http://dsp-psd.pwgsc.gc.ca/Collection/R62-342-2001E.pdf

For information on black bear and grizzly bear safety please refer to the Department of Environment and Natural Resources, Government of the Northwest Territories website:
http://www.enr.gov.nt.ca/programs/bears/bear-safety

Include local ENR personnel name and contact information:

Ian McLeod 867-978-2248

## 24. Closure and Reclamation and Post-Closure Plan

When the Solid Waste Disposal Facilities reaches capacity, or the community decides to stop using the Solid Waste Disposal Faciliteis, it is necessary to complete a closure, reclamation and post-closure plan for the Solid Waste Disposal Facilities. A closure plan is a detailed document that describes how the facility would be shut down and designed to prevent or minimize impacts to the receiving environment. Typically, a closure plan includes placing final cover over the landfill to prevent water (surface water and precipitation) from infiltrating through the waste, diverting surface water away from the landfill cell, re-vegetating the landfill cover and decommissioning any buildings and facilities. A post-closure plan describes a long-term plan to maintain and monitor the closed and reclaimed site to verify whether the design features are working as designed and protecting the environment. Some aspects of closure and post-closure, such as groundwater and landfill gas monitoring, may be incorporated into the design or operation of a facility.

Typically, these plans need to be submitted for review by the Inuvialuit Water Board a minimum of six months prior to carrying out the work outlined in the plan, but your water licence may specify a different requirement.

Has an interim closure and reclamation plan been completed for the Solid Waste Disposal Facilities? (This plan may be required for closure activities prior to final closure of the entire site.)

☐ Yes ☑ No

If **yes**, please provide the following information for the plan:

Prepared by (name of company or person that wrote the plan):

Title of document:

Completion date:

Location of document (where is the plan kept, or where can a copy be obtained?):

Has a final closure and reclamation plan been completed for the Solid Waste Disposal Facilities? (This plan is required prior to final closure of the facility.)

☐ Yes ☑ No

If **yes**, please provide the following information for the plan:

Prepared by (name of company or person that wrote the plan):

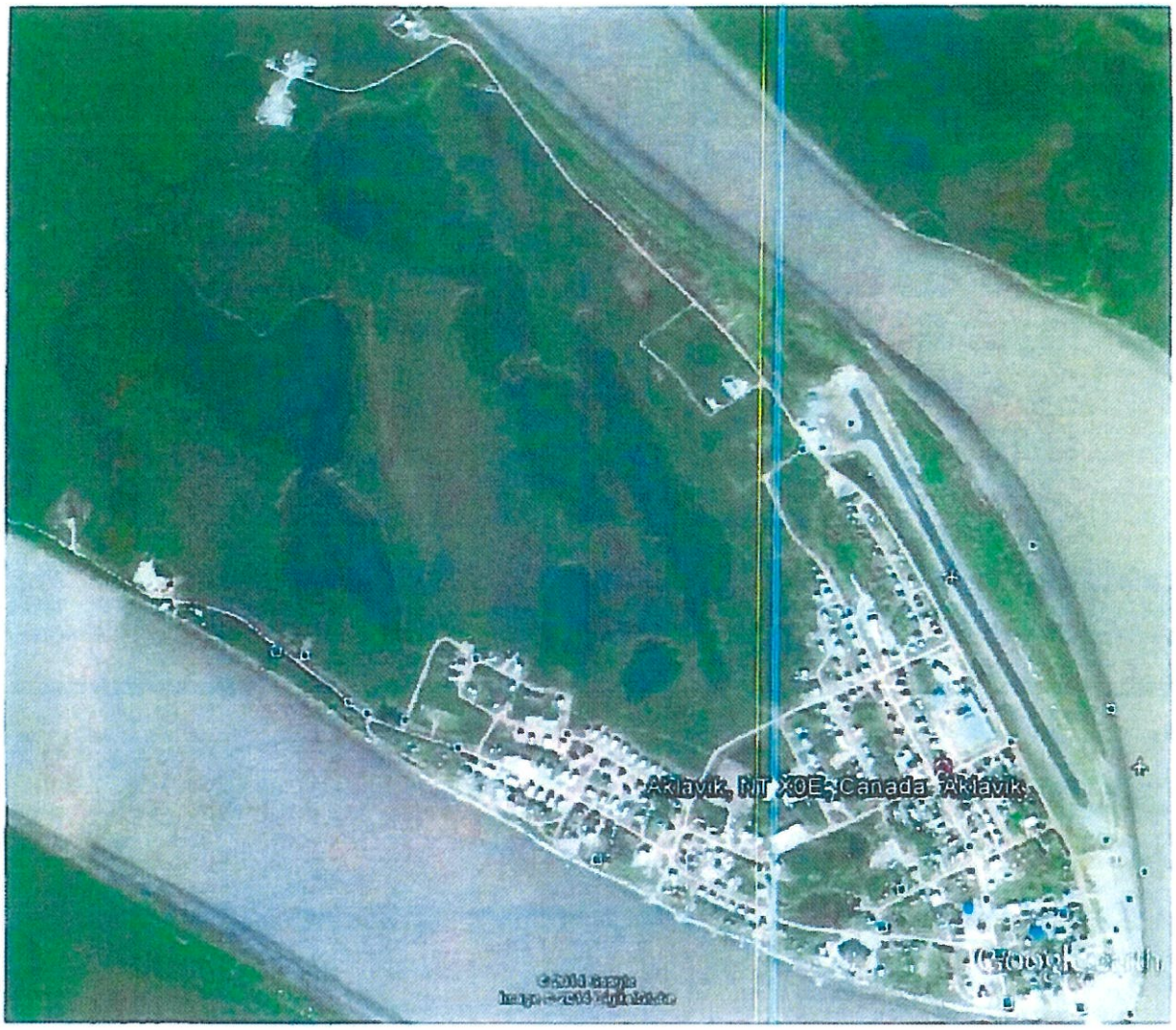
Title of document:

Completion date:

Location of document (where is the plan kept, or where can a copy be obtained?):

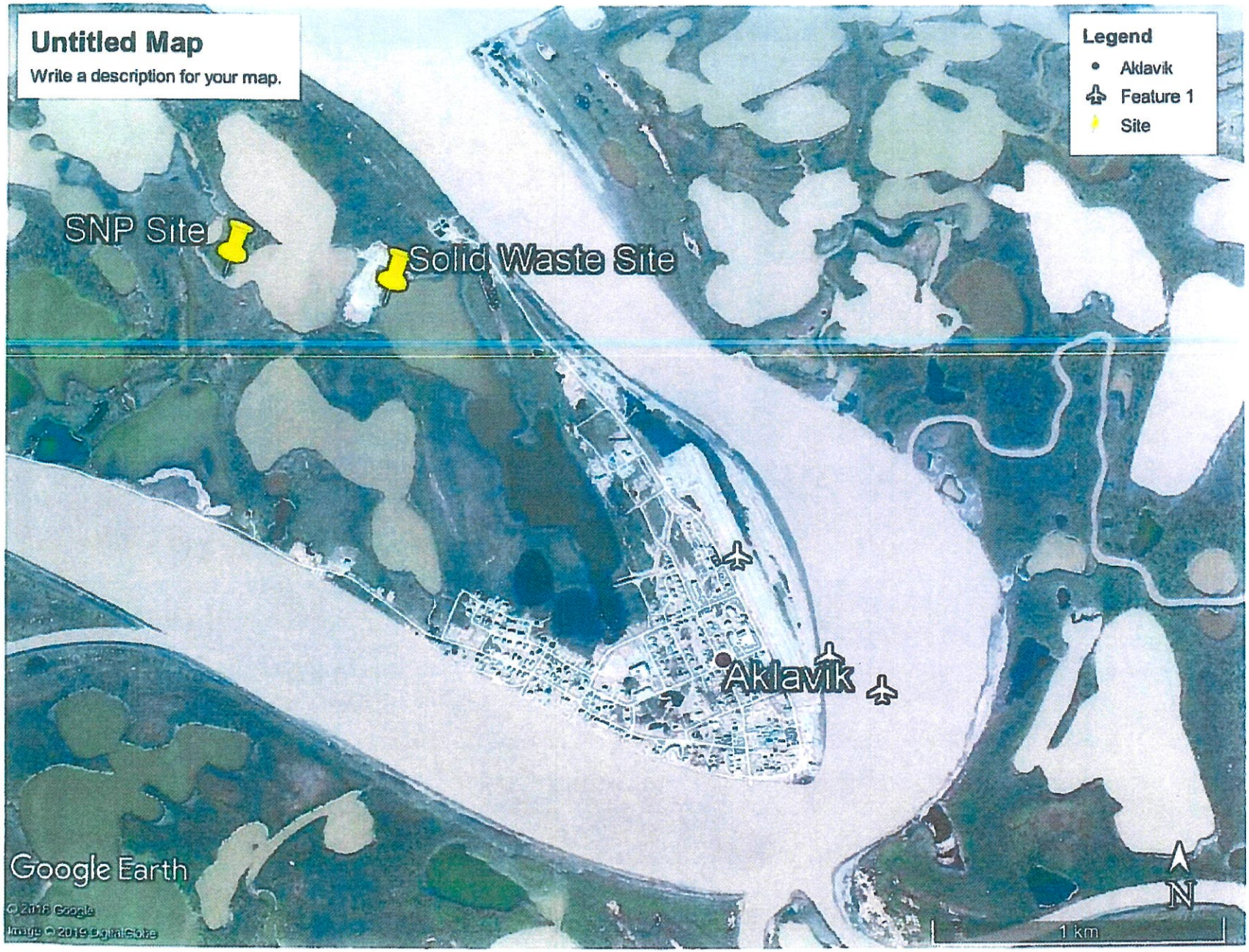
# Appendices

Appendix 1: Attach a map of the Hamlet




Appendix 1

Appendix 2: Attach a location map of the solid waste disposal facilities indicating features as specified on page 4


Untitled Map
Write a description for your map.
Legend
Aklavik
Feature 1
Site
SNP Site
Solid Waste Site
Aklavik
Google Earth
© 2018 Google
Image © 2019 DigitalGlobe
N
1 km

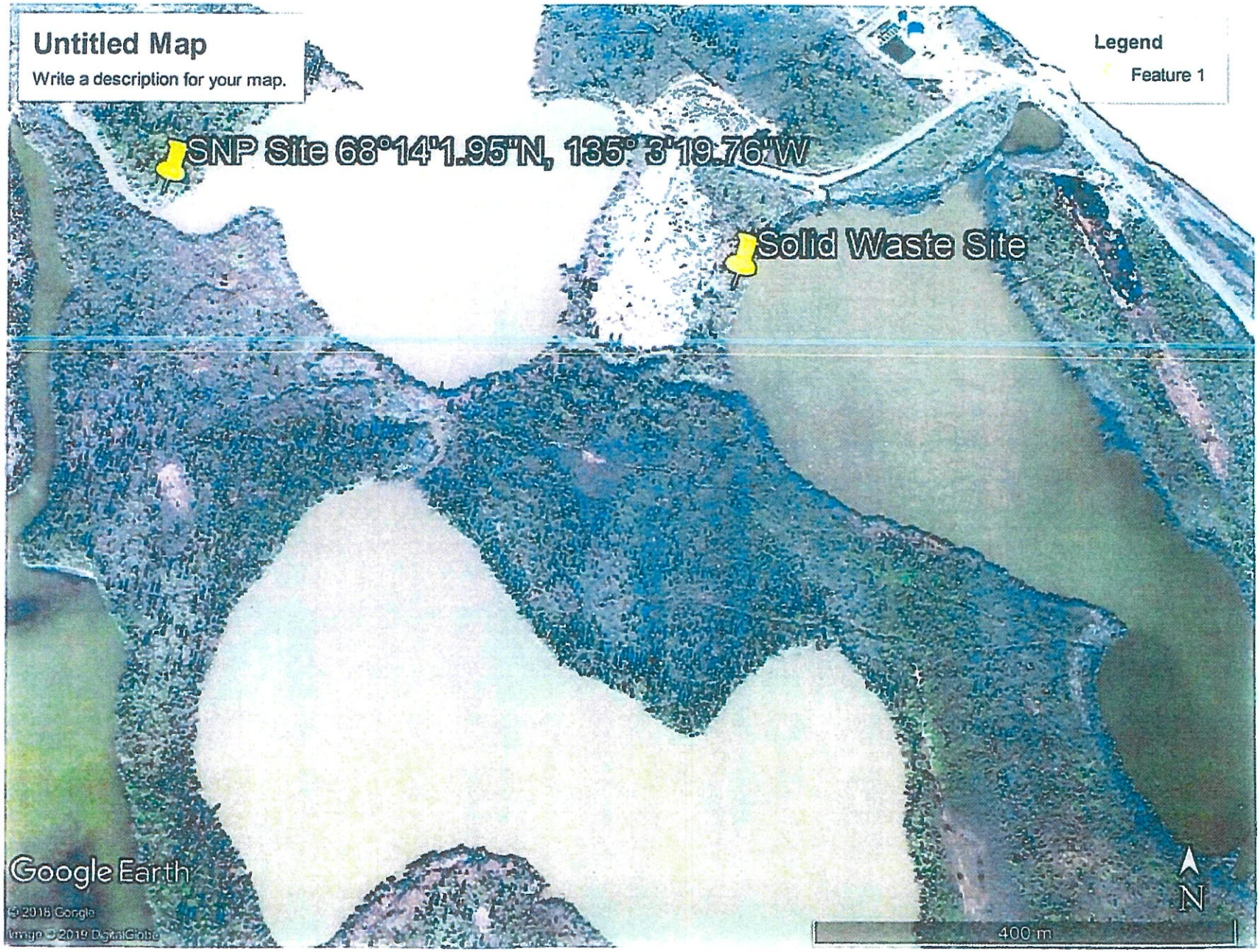
Appendix 3: Attach as-built drawings or design drawings or a schematic as specified on page 8

N/A

Appendix 4: Attach a drawing as mentioned on page 25

n/A

Appendix 5: Attach a map or drawing of SNP sampling locations as mentioned on page 32


Untitled Map
Write a description for your map.
Legend
Feature 1
SNP Site 68°14'1.95"N, 135° 3'19.76"W
Solid Waste Site
Google Earth
© 2016 Google
Image © 2019 DigitalGlobe
N
400 m