

# Waste Management Plan

## PIN-C Remediation Project

**PREPARED BY: Crown Indigenous Relations and Northern Affairs Canada**

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# 1 Introduction

Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) intends to implement the PIN-C Remediation Project (the Project). In support of these activities, CIRNAC has developed the PIN-C Remediation Project – Waste Management Plan (Plan).

This current version of the Plan is conceptual in nature and a more comprehensive plan will be submitted by the successful Remediation Contractor. This current plan is considered as the minimum standard that submittals will be measured against.

## 1.2 Purpose and Scope

The purpose of this Waste Management Plan is to guide the waste management activities for the PIN-C Remediation Project. The waste will be generated through two general streams: 1) existing legacy waste from the operation of the Distance Early Warning (DEW) Line site; and 2) waste generated from remediation activities. It is intended to be the minimum standard for waste management that CIRNAC requires of itself and its contractors for the duration of the project.

This Plan will be presented to all staff during their on-site orientation sessions. During the worker orientation seminar, training sessions will be scheduled to ensure employees have an understanding of their role within the waste management strategy on-site.

The primary objective of the PIN-C Remediation Project is to mitigate hazards and remediate the existing legacy waste at the site.

## 1.3 Site Description

PIN-C, Bernard Harbour is a former intermediate Distant Early Warning (DEW) Line site located in the Kitikmeot Region of Nunavut, on the shores of Dolphin and Union Strait (68.781824°N, 114.832372°W). The Site was constructed in 1958 and subsequently abandoned in 1963. Crown -Indigenous Relations and Northern Affairs Canada (CIRNAC) became the custodian of the Site in 1965. The town of Kugluktuk, Nunavut, is the closest community with a full range of services to the Site, located approximately 100 km south of the Site.

The Site is composed of two distinct areas: the Main Station and the Beach. Historical facilities at the Site consist of the following: a Garage; a Warehouse; a Module Train; an Inuit House; petroleum, oil, and lubricants (POL) tank concrete foundations at the Main Station and Beach; a dismantled POL pipeline; and a downed Radar Antenna. The POL tanks at the Main Station and Beach have been removed since abandonment of the Site. There is also an active North Warning System (NWS) short-range radar (SRR) installation located approximately 5 km southwest of the Site. Two contemporary NWS POL tanks are located at the Beach within the same footprint as the historic POL foundations.

## 1.4 Project Description

The primary objective of the PIN-C Remediation Project is to reduce, and where possible, eliminate the risk to the environment and human health caused by legacy environmental concerns from the site.

The Project is expected to span four months (one month in the fall of the first year and three months of active remediation in the following calendar year). A summary of the Project related activities are provided in the below:

- Mobilization of personnel, equipment, materials and support facilities, including fuel by sealift and air.
- Upgrading and maintenance of access roads and airstrip.
- Construction of a temporary camp.
- On-site soil treatment.
- Excavation of impacted soils for off-site disposal.
- Demolition of structures and buildings including removal and management of hazardous materials
- Excavate buried debris areas and re-grade ground surface to match the existing topography.
- Collection, cleaning, and crushing of empty drums.
- Collection and sorting of debris.
- Sorting, consolidating, packaging and containerization of all impacted soils, equipment, materials and debris (hazardous and non-hazardous).
- Excavation of borrow material and backfilling and grading of all excavated areas.
- Deconstruction of the temporary camp and packaging for removal.
- Demobilization of fuel, materials and equipment off site including transportation of containerized soil and hazardous/non-hazardous waste and debris and
- Disposal of all soil and waste materials at off-site facilities.

## 2 Waste Management Approach

### 2.1 Waste Streams

This Waste Management Plan considers both Legacy waste streams and Project generated waste streams. For reference, Table 1 below displays a breakdown of waste types

**Table 1 Waste Streams**

Waste Stream	Project Generated Waste	Legacy Site Waste
<b>Hazardous or Potentially Hazardous Wastes</b>		
Ash or Incinerator Residue	✓	
Batteries		✓
Asbestos Containing Materials		✓
Lead-Based Painted Materials		✓
Soils Impacted by Waste Storage/Chemical Use (PCBs, batteries, pesticides)		✓
Hydrocarbon, metals, PCB Impacted Soil		✓
Chemical Wastes – Liquids and Solids	✓	✓
Used Oil, Fuels, Lubricants, Greases, Oil Filter, and Solvents	✓	
<b>Non-Hazardous Waste</b>		
Historic Building Demolition Waste		✓
Camp Construction/Demolition Waste	✓	
Camp Facilities Refuse	✓	
Metal Debris		✓
Cans/Plastics	✓	✓
Grey water	✓	
Sewage	✓	

### Legacy Site Waste

The management of Legacy Site Waste is detailed within the PIN-C RAP. The volumes of waste and their management are outlined below in Table 2.

**Table 2: Legacy Site Waste**

Waste Stream	Volume	Waste Management
<b>Hazardous or Potentially Hazardous Wastes</b>		
Metals or Hydrocarbon (concentration above what can be treated on-site/PHC contamination not suitable for landfarming) impacted soil	269 m <sup>3</sup>	Off-site Disposal
Hydrocarbon (concentration below what can be treated on-site/PHC contamination suitable for landfarming) impacted soil	550 m <sup>3</sup>	Landfarming
Non-Hazardous Buried Debris	201 m <sup>3</sup>	Off-site Disposal
Hazardous Buried Debris	20 m <sup>3</sup>	Off-site Disposal

Waste Stream	Volume	Waste Management
Non-Hazardous Surface Debris/Barrels	39 m <sup>3</sup>	Off-site Disposal
Hazardous Surface Debris/Barrels	3 m <sup>3</sup>	Off-site Disposal
Non-Hazardous Demolition Debris	431 m <sup>3</sup>	Off-site Disposal (Untreated & unpainted wood may also be burned on-site)
Hazardous Demolition Debris	143 m <sup>3</sup>	Off-site Disposal

The management of Project Generated Waste is detailed below. The volumes of waste and their management are outlined below in Table 3.

**Table 3: Project Generated Waste**

Waste Stream	Volume	Waste Management
<b>Hazardous or Potentially Hazardous Wastes</b>		
Ash or Incinerator Residue	unknown	Off site Disposal
Chemical Wastes – Liquids and Solids	unknown	Off site Disposal
Used Oil, Fuels, Lubricants, Greases, Oil Filter, and Solvents	unknown	Off site Disposal
<b>Non-Hazardous Waste</b>		
Camp Construction/Demolition Waste	unknown	Off site Disposal
Camp Facilities Refuse	unknown	Off site Disposal
Cans/Plastics	unknown	Off site disposal/recycling
Grey water	unknown	Discharge of greywater to sump located greater than 30m from watercourses.
Sewage	unknown	Off site Disposal

The Contractor will be responsible for:

- Tracking the volume of waste;
- Documenting the final location of all waste, including transport records and manifests;
- Documenting all materials salvaged during the remedial program;
- Complying with remedial specifications, governing acts/regulations concerning waste materials and site permits.

A summary level overview of the waste management approaches to be applied to Legacy Site Waste is as follows:

- **Non-Hazardous Waste:** Includes metals, glass and other non-hazardous debris from waste disposal areas, scattered refuse, building/infrastructure demolition and vehicles/equipment. This waste will be consolidated in containers and transported off-site for disposal in a southern waste management facility. Unpainted and untreated wood may be incinerated on-site following the obtention of required burn permit.
- **Hazardous Waste:** Includes hazardous materials from waste disposal areas, wood painted with lead based paint, asbestos, batteries, waste fuel. All hazardous waste will be packaged and shipped per the Transportation of Dangerous Good Act to a licensed hazardous waste management facility. Transport of materials will be tracked by the remedial Contractor.
- **Hydrocarbon and Metal Impacted Soils:** Petroleum hydrocarbon (PHC), metal and PCB impacted soils are found at the Site. These soils will be excavated into soil bags for transport off-site to a southern waste management facility.

The Contractor will be required to prepare a comprehensive Waste Management Plan building upon this document and outlining the proposed method of handling each kind of Project generated waste streams listed in Table 3. Minimum standards and assumptions are provided below.

## 2.2 Description of Waste Management

Successful waste management requires the separation of different types of wastes as appropriate. The Contractor will include detailed descriptions, for each type of waste management infrastructure. The following three categories are predicted:

1. Incineration;
2. Recyclable Material; and
3. Transfer to Approved Facilities

The volumes of these materials will be determined by the Contractor's selected remedial approach and will be updated in subsequent Waste Management Plans.

### 2.2.1 General Requirements

Waste management requires a systematic approach to ensure waste reduction and environmental effects are mitigated. Certain processes and protocols are specific to the individual types of waste management infrastructure; however, there are certain procedures common to all:

- Waste must be segregated into categories specific to each waste stream;
- Storage of waste materials must be done in such a way to prevent environmental impact, limit animal attraction and maintain worker safety;
- Health and safety training must be provided to workers and tailored to the specific scope of work required;
- All waste management activities must be documented, including volumes, personnel responsible,

- material transport procedures/manifests and any incidents;
- Failures in the waste management approach which result in environmental or health and safety incidents must be evaluated to determine corrective actions; and,
- Throughout all waste management processes, opportunities for source reduction, recycling and reuse/recovery should be evaluated and enacted where possible.

### 2.2.2 Incineration

Several types of Project generated material will be eligible for incineration. Any incineration should occur after source reduction, reuse and recycling have been considered. Waste suitable for incineration is generally inert waste, with the exception of the odours of camp food waste which are animal attractants. Materials include food waste and camp facilities refuse (including, paper products, cardboard, paper, newspapers and magazines, most packaging, waxed paper, paper towels, serviettes and paper cups).

The Contractor will be required to provide a dual chamber, forced air, fuel fired incinerator to site to process applicable Project generated waste. Incinerators must meet the requirements of the Canada-wide Standards for Dioxins and Furans and the Canada-wide Standards for Mercury Emissions. As part of the larger Waste Management Plan, the Contractor will be required to outline the Incineration Plan. The plan must be aligned with Environment Canada's Technical Document for Batch Waste Incineration to ensure air emissions are minimized.

Incineration is proposed for various reasons, including reduced wildlife attractant to food waste and reduction of waste volumes. Incineration of eligible waste will generate ash. Any ash produced from incineration will be subject to testing for hazardous material content. Ash material will be disposed of accordingly, at an off-site waste management facility.

The Contractor will be requested to incinerate materials daily; however, should any food or kitchen wastes require storage, materials must be well sealed to limit wildlife attraction. The incinerator will be located in a designated burn area free from combustible materials or vegetation and downwind of camp facilities. Fire response equipment must be readily available and operators trained in response measures. All incinerator operators will be appropriately trained on the specific unit in use, including operation, maintenance and testing protocols.

### 2.2.3 Recyclable Material

All materials appropriate for normal recycling (i.e. empty food cans, plastics) will be bagged and shipped opportunistically on backhauls to a recycling facility. Materials such as plastics, foams and rubbers can be separated on-site and shipped to an approved facility. Select items on-site can be sent back to the manufacturer for recycling or reuse. Large, reusable containers such as drums can be sent back to the supplier. Metal parts from heavy equipment can also be sent back to the supplier for reconditioning and reuse.



These materials present no environmental risk; however, may be an animal attractant from residual odours. Recyclable material must be securely stored to prevent animal attraction and habituation.

#### 2.2.4 Transfer to Approved Facilities

All project-generated hazardous waste as well as any material which cannot be incinerated, or recycled will be packaged and shipped to an approved waste management facility for disposal (hazardous or non-hazardous based on product). This includes material such as:

- Waste oil/product from vehicles and equipment;
- Demolition debris;
- Vehicle components (e.g. anti-freeze and tires);
- Lead acid or alkaline batteries;
- Aerosol cans;
- Contaminated materials from any spill response or hydrocarbon management (e.g. spill pads, sorbents);
- Incinerator ash and residue exceeding applicable criteria; and
- Solvents and paint.

All materials destined for off-site disposal must be stored safely and securely before transport. Storage of liquid and solid wastes destined for off-site disposal will be stored in steel drum containers meeting *Transportation of Dangerous Goods Act* and Regulations, closeable lids, and labels for marking contents and date filled. Shipment of these materials to licensed facilities must be conducted by trained individuals in accordance with the *Transportation of Dangerous Goods Act*.

Best management practices and environmental planning (e.g. the Spill Prevention Plan) are expected to reduce the potential for PHC releases to the environment during the PIN-C Remediation Project. Despite these efforts, there is a potential for spills to occur. Should any fuel release occur during active remediation, impacted soils will be collected for transport off-site to a waste management facility licensed to accept the soils.

#### 2.2.5 Wastewater

The PIN-C Remediation Project may generate three discrete wastewater streams to be contained and managed separately:

- Camp Greywater (washing, general use), kitchen sumps/traps
- Camp Blackwater (sewage)
- Process Wastewater: Water used for washing and decontamination, such as washing drums, tanks, equipment, soil and non-hazardous waste before storage and off-site disposal.

##### Camp Greywater

Camp Greywater will be discharged on-site. Effluent will be released onto the ground at a location, reviewed

and accepted by the Departmental Representative that is a minimum of 30 m from natural drainage. Discharge locations will be selected to minimize erosion. No direct discharge will be permitted to surface water or wetlands.

### **Camp Blackwater**

Camp Blackwater will be collected and transported off-site for disposal.

### **Process Wastewater**

Process water may be required during remedial activities and will be sampled and disposed of off-site at a facility licensed to accept the waste water. The Contractor will also be responsible for transporting and disposing of process waste water to an approved off-site disposal facility.

## **3 Closure**

Upon completion of work, the Contractor must remove all Project generated waste materials from the sites. Inspections will be conducted by CIRNAC or representatives to ensure conditions for closure have been met.