May 20, 2021

Assol Kubeisinova

Technical Advisor

Nunavut Water Board

P.O. Box 119

Gjoa Haven, NU X0B 1J0

VIA EMAIL

Subject: Response to Nunavut Water Board Information Requests, May 13, 2021

Dear: Assol Kubeisinova,

On behalf of Environment and Climate Change Canada (ECCC), please find enclosed our responses to the Nunavut Water Board (NWB)'s information requests pertaining to ECCC's 8BC-EUR1621 Water Licence Renewal Application.

Item #1:

The Manager of Licensing advises that the notice of application will be sent out and public review will be initiated once the Inuktitut executive summary is available to the Board.

ECCC #1 Response:

Please see **Attachment A**.

Item #2:

The NPC conformity determinations issued for the project on February 9 and 22, 2021 list significant changes to the project. Both determination documents direct the proposals to undergo screening by the NIRB. However, the latest NIRB screening for the project is available for an NPC determination dated January 22, 2021 only. No later screening decisions are available. The latest correspondence is from the NIRB requesting the Ministers of Northern Affairs and of Fisheries and Oceans and the Canadian Coast Guard to extend the screening period in order to receive the proponent's responses to intervener information requests.

ECCC #2 Response:

On May 13, 2021, the Nunavut Impact Review Board (NIRB) submitted their Screening Decision Report for the "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure

Upgrades, Temporary Camp and Amendment of Water Licence, for the Eureka High Arctic Weather Station" project proposal (NIRB: 21XN012; NPC: 149476). A copy of the Cover Letter and Screening Decision Report for this file are provided as **Attachment B**.

Item #3:

The water licence application mentions a new water source as the only requested change. Is the Licensee planning to apply for licence amendments in regards to the activities in the NPC conformity determinations above?

ECCC #3 Response:

Yes, ECCC is seeking amendments to align with the NPC conformity determination. Please advise if ECCC needs to amend our current Application for Water Licence Renewal submission.

Item #4:

Licence Part H, Item 2, Part I, Item 1, and Part J, Item 9 require the submission of revised management plans and an operations and maintenance manual. The Board has no records of receiving these.

ECCC #4 Response:

The Waste Management Plan for Eureka High Artic Weather Station (HAWS) and the Emergency Plan for Petroleum and Allied Petroleum Products are provided in **Attachment C**.

Item #5:

The 2020 annual report makes note of the discovery of 4,500 m3 of contaminated soil, for which a lined soil storage cell was constructed. We have no records of the Licensee applying for and receiving any permits issued by the NWB in relation to such construction.

ECCC #5 Response:

A lined soil storage cell was constructed to temporarily store the estimated 4500 cubic metres of contaminated soil. It was designed to contain the contaminated soil for short-term only until a long-term management plan could be implemented, which is currently being developed.

Hydrocarbon contaminated soils are not waste; the intent is to remediate the soils.

Robin Reese Project Manager, AECOM Canada Tel: 1-587-436-6058 Email: robin.reese@aecom.com	Asif Mohammed, P.Eng. Environment and Climate Change Canada Government of Canada Tel. : 905-336-4725 Email : asif.mohammed@canada.ca

With the exception of personal information, all comments will become part of the public record.

Best Regards,

Mohammed, Asif

Digitally signed by: Mohammed, Asif
DN: CN = Mohammed, Asif C = CA O = GC OU = EC-EC
Date: 2021.05.20 17:49:49 -04'00'

Asif Mohammed

AECOM Imagine it. Delivered.

Attachment A

Inuktitut Summary of Renewal Application

8BC-EUR1621
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ᓴᓄᑦᓂᖅᑐᑦᓂᖅ ᐱᔪᔪᑎᑭᐅᔪᖅ ᐅᒧᖓᓐ ᐋᓱᓗᒃ ᖃᓄᑎᐅᑐᖅᒥᑦ ᓱᓪᓗᓂᑕᕐᓄᓄᕐᓂᓄᑦ (HAWS) ᓱᓪᓗᐅᑦ ᖁᓄᐃᑦᑕᑦᓂᓕᖓᓄᑦ ᑲᑎᑭᓐᓄᑦᑐᓂᐊᓕᓂᓄᑦ ᖁᐅᓴᒪᔪᑎᑭᐅᔪᓂᖅᑐᓂᓄᑦ ᓱᓪᓗᑦ. ᐊᓪᒪᓗ, ᐋᓱᓗᒃ ᖃᓄᑎᐅᑐᖅᒥᑦ ᓱᓪᓗᓂᑕᕐᓄᓄᕐᓂᓄᑦ (HAWS) ᐃᑲᔪᖅᑐᐃᒪᔪᑎᑭᐅᔪᖅ ᐅᑭᐅᖅᑕᖅᑐᖅᑎᑦ ᖁᖏᓪᓕᓱᓂᕐᓂᖅᓯᑦ. ᐅᓇ ᐋᓱᓗᒃ ᖃᓄᑎᐅᑐᖅᒥᑦ ᓱᓪᓗᓂᑕᕐᓄᓄᕐᓂᓄᑦ (HAWS) ᐱᔨᑎᑎᕈᑎᐅᖓᓕᒫᖅ ᐃᓂᓴᓕᐅᖅᑎᐅᑲᓂᑦ ᐃᓂᓴᓴᐅᓂᐊᖅᑐᓂᑦ ᖁᐅᔨᓴᕐᔪᑦᓴᓂᑦ ᖃᓄᑎᐅᑐᖅᒥᑦᓯ, ᐊᓱᔨᑉᐸᓕᑦᑐᑎᓂᑦ ᖁᐅᔨᓴᕈᑎᓴᓂᑦ ᐊᓪᒪᓗ ᐃᓕᓐᓄᑦ ᐳᓕᕐᖅᑐᓕᕆᓂᖅᑎᑦ.

ᐊᐅᑎᓕᕆᓂᖅᑎᑦ ᐊᓪᒪ ᓱᓕᑎᑦ ᐊᓱᔨᖅᑕᓱᐊᓂᖅᓯᑦ ᑲᓇᑕᒥ (ECCC) ᐃᓂᖁᖅᑎᑦᑎᓂᐅᐸᑦᑐᑦ ᖁᓄᐃᓕᓕᐅᕈᑎᓄᑦ ᐃᑲᔪᕈᑎᓴᓂᑦ ᐱᓕᕆᓇᖅᑕᑦ. ᐅᓇ ᐃᓕᖁᖅᑐᖅ ᐃᓂᓴᓴᖁᖅᑎᑦᑎᓂᖅᑎᑦ, ᐅᖅᓱᓕᖅᑎᑦᑎᓂᖅᑎᑦ, ᖁᐅᓪᓚᕆᐊᓂᖅᑎᑦ, ᐃᖏᕐᓂᖅᑎᑦᑎᓂᖅᑎᑦ, ᐃᖏᕐᕋᔪᑎᓂᖅᑎᑦ, ᖁᓕᓴᕐᓂᖅᑎᑦ ᐊᓪᒪᓗ ᓴᓇᓕᓕᐅᕈᑎᓂᖅᑎᑦ ᐃᓂᓴᓴᐅᓂᐊᖅᑐᓂᑦ ᖁᓕᓴᕐᓂᖅᑎᑦ, ᐃᖏᕐᕋᔪᑎᓂᖅᑎᑦ, ᖁᓕᓴᕐᓂᖅᑎᑦ ᐊᓪᒪᓗ ᐃᓕᓐᓄᑦ ᐱᓕᕆᓇᖅᑕᑦ.

ᐃᓚᖏᓪᓕ ᓴᐃᔭᕐᓂᖅ ᓄᑦᖃᔪᓚᐊᖅᑎᑦᑎᓂᖅᓯᑦ

ᐅᓇ ᓄᑦᖃᔪᓚᐊᖅᑎᑦᑎᓂᖅᓯᑦ ᐱᓇᓱᒍᑎ ᑐᓂᔨᐅᓂᓕᖅᑐᖅ ᐅᑯᓄᖓ ᐊᐊᖏᓪᓕᓱᓂᕐᓂᖅᑎᑦ ᐊᓪᒪᓗ ᓱᓪᓗᐃᑐ ᐊᓱᔨᖅᑕᓱᐊᓂᖅᓯᑦ ᐱᓕᕆᓇᖅᑕᑦ (ECCC) ᓄᑦᖃᒥ ᑐᓵᔪᕐᓗᒋᓐᓇᖅᓯᓂᖅᑐᖅ ᐃᓚᖏᓪᓕ ᐋᓱᓗᒃ ᖃᓄᑎᐅᑐᖅᒥᑦ ᓱᓪᓗᓂᑕᕐᓄᓄᕐᓂᓄᑦ (HAWS) ᐃᓚᖓᑦ ᓴᐃᔭᕐᓂᖅᑎᑦᑎᓂᖅᓯᑦ ᐃᓕᓐᓄᑦ 2016-ᒥᑦ ᓄᓇᕗᒥᑦ ᐃᓚᓕᓱᓂᖅᓯᑦ ᑲᑎᒪᔨᓄᑦ. ᐅᓇ ᓄᑦᖃᔪᓚᐊᖅᑎᑦᑎᓂᖅ ᓇᓗᓇᐃᔭᑯᑎ ᑲᓇᑕᒥ ᐊᐅᓪᒋᐅᕙᓪᓕᐊᓂᖅᑎᑦ ᐋᓱᓗᒃ ᖃᓄᑎᐅᑐᖅᒥᑦ ᓱᓪᓗᓂᑕᕐᓄᓄᕐᓂᓄᑦ (HAWS) ᐊᓪᒪᓗ ᐊᐅᓪᒋᐅᓱᒪᔪᖅ ᐊᙵᑎᓪᓚᓂᖅᑎᑦ ᐊᓪᒪᓗ ᓱᓪᒥᑦ ᐊᓱᔨᖅᑕᑦ.

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Attachment B

Screening Decision Report Cover Letter & Screening Decision Report for NIRB File No.: 21XN012

NIRB File No.: 21XN012
Associated NIRB File No.: 12XN020
NPC File No.: 149476
Associated NPC File Nos.: 148232, 148241, 148746, 149440, 149457

May 13, 2021

To: The Honourable Dan Vandal, P.C., M.P
Minister of Northern Affairs
House of Commons
Ottawa, ON K1A 0A6

The Honourable Bernadette Jordan, P.C.
Minister of Fisheries and Oceans and the
Canadian Coast Guard
House of Commons
Ottawa, ON K1A 0A6

Sent via email: dan.vandal@parl.gc.ca, min@dfo-mpo.gc.ca, and Bernadette.jordan@parl.gc.ca

Re: Screening Decision for Environment and Climate Change Canada's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" Project Proposal, Qikiqtani (North Baffin) Region

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Dear Honourable Ministers:

On February 22, 2021 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen Environment and Climate Change Canada's (ECCC) "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" project proposal from the Nunavut Planning Commission (NPC or Commission), with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*) and s. 87 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*), the NIRB commenced screening this project proposal and assigned it file number **21XN012**.

Following the assessment of all material information provided, the NIRB is recommending that a review of ECCC's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" project is not required pursuant to paragraph 92(1)(a) of the *NuPPAA*.

Pursuant to its discretion under paragraph 92(2)(a) of the *NuPPAA*, the NIRB has determined that specific terms and conditions are appropriate for this project.

Accordingly, the NIRB is issuing the attached Screening Decision Report dated May 13, 2021 to the responsible Minister. The Screening Decision Report provides, among other things, the regulatory framework, project overview and the NIRB's assessment process, factors relevant for the determining significance of impacts and recommended project-specific terms and conditions.

Please note that the project proposal will not be enclosed due to the size of the electronic document and the limited bandwidth. However, an electronic copy of the project proposal is accessible online from the NIRB's online public registry at www.nirb.ca/project/125586.

Please note that, the Board only directly addresses these notice letters to those individuals considered to be a "responsible Ministers with decision-making authority" for the project as set out under the *NuPPAA*. However, regulatory authorities and other authorizing agencies associated with a proposed project (e.g. Regional Inuit Associations, Nunavut Water Board) will continue to be copied on the Notice of Release of the Screening Decision Report. The NIRB is providing these parties with notice and access to the Board's Screening Decision Report as required under s. 200(2) and in support of these parties in the fulfillment of their responsibilities under the *NuPPAA* and the *Nunavut Agreement* to address, and as appropriate, implement, to the fullest extent possible, any relevant NIRB recommendations contained in the Screening Decision Report.

We look forward to receiving a response from the responsible Ministers and the NIRB remains available for consultation with the Ministers regarding this report as necessary. If you have any questions or require clarification, please do not hesitate to contact the NIRB's Director, Technical Services, Tara Arko at (867) 983-4611 or tarko@nirb.ca.

Sincerely,

Kaviq Kaluraq
Chairperson
Nunavut Impact Review Board

Enclosure (1): Screening Decision Report, NIRB File No.: 21XN012 (May 13, 2021)

cc: Lootie Toomasie, Chairperson of the Nunavut Water Board
The Honourable David Joanasie, Minister of Culture and Heritage

SCREENING DECISION REPORT
NIRB FILE No.: 21XN012

NPC File No.: 149476

May 13, 2021

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Environment and Climate Change Canada's (ECCC) "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*) and s. 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Ministers accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 23 of the *NuPPAA*:

> *Nunavut Agreement*, Article 12, Section 12.2.5: In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

The purpose of screening is provided for under Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

> *NuPPAA*, s. 88: The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board.

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under Article 12, Section12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

> *NuPPAA*, s. 89(1): The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:
>
> (a) a review is required if, in the Board's opinion,
>
> i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,
> ii. the project will cause significant public concern, or
> iii. the project involves technological innovations, the effects of which are unknown; and
>
> (b) a review is not required if, in the Board's opinion,
>
> i. the project is unlikely to cause significant public concern, and
> ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

It is noted that under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s.89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

NuPPAA, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

(a) a review of the project is not required;

(b) a review of the project is required; or

(c) the project should be modified or abandoned.

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

NuPPAA, s. 92(2) In its report, the Board may also

(a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.

PROJECT REFERRAL

On February 22, 2021 the NIRB received a referral to screen ECCC's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station" project proposal from the Nunavut Planning Commission (Commission), with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan. The Commission noted that the current project proposal is a significant modification to the previous conformity determinations issued on December 17, 2010, April 19, 2012, April 16, 2016, March 7, 2018, January 22, 2021 and most recently on February 9, 2021 because it involves new activities including: the construction of a new landfarm, a solid waste facility, a new raw water storage reservoir, and a new wastewater treatment plant.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Nunavut Agreemen*t and s. 87 of the *NuPPAA*, the NIRB commenced screening this project proposal and assigned it file number **21XN012**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Screening Process Timelines

The following key stages were completed for the screening process:

Date	Stage
February 22, 2021	Receipt of project proposal and positive conformity determination (North Baffin Regional Land Use Plan) from the Commission.
February 22, 2021	Request to complete public registry online and provide information pursuant to s. 144(1) of the *NuPPAA*
March 4, 2021	Receipt of online application from Proponent
March 4, 2021	Scoping pursuant to s. 86(1) of the *NuPPAA*
March 18, 2021	Public engagement and comment request

Date	Stage
April 8, 2021	Receipt of public comments
April 14, 2021	Proponent provided with an opportunity to address comments/concerns raised by public
April 26, 2021	Proponent responded to comments/concerns raised by public
April 28, 2021	Ministerial extension requested from the Minister of Northern Affairs
May 13, 2021	Issuance of Screening Decision Report

2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at www.nirb.ca/project/125586.

Project:	Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades at the Eureka High Arctic Weather Station				
Region:	Qikiqtani (North Baffin)				
Location:	Eureka High Arctic Weather Station				
Closest Community:	Grise Fiord	**Distance (approximate)**	400 kilometres (km)	**Direction**	North
Summary of Project Description:	The Proponent intends to construct a new landfarm, a Non-Hazardous Solid Waste Facility and intends to upgrade the Water and Sewage Treatment Infrastructures.				
Project Proposed Timeline:	August 2021 to 2042				

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the project as set out by ECCC in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Conducting an archeological assessment for all potentially affected areas that haven't been previously assessed;
    - If any archeological areas of significance are identified, they will be protected through mitigation measures approved by the Department of Culture and Heritage.
- Use of heavy equipment for project activities;
- Construction of a new landfarm to store and treat an estimated amount of 4,500-6,000m³ of contaminated soils;
- Construction of a Non-Hazardous Solid Waste Facility to store waste from the demolition of various structures and infrastructure;
- Development of a new raw water storage reservoir and associated infrastructure, as well as incorporation of the existing raw water storage reservoir;
    - A new packaged wastewater treatment plant will also be constructed.
- Withdrawal of water from Black Top Creek and West Remus Creek to support station construction, dust suppression, and temporary camp use;
- Use and storage of fuel (approximately 741,000 L) for project activities;

- Food and paper waste to be incinerated on site within existing facility; and
- Hazardous and non-combustible wastes to be properly disposed of off-site at an appropriate facility.

3. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above.

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on March 18, 2021 to community organizations in Grise Fiord, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by April 8, 2021 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; and if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (and providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

On or before April 8, 2021 the NIRB received comments from the following interested parties:

- **Crown-Indigenous Relations and Northern Affairs Canada**

a. Summary of Public Comments and Concerns Received during the Public comment period of this file

The following provides a summary of the comments and concerns received by the NIRB:

Crown-Indigenous Relations and Northern Affairs Canada

- Recommends that the Proponent follow measures to aid in mitigation of potential environmental impacts from the non-hazardous waste facility and landfarm activities;
- Clarify information regarding contaminated soils and treatment and disposal methods of the expected combustible waste;
- Recommends that the Proponent employ and train local Inuit, as well as maintain open communication with all interested parties throughout the life of the project;
- Notes that the Environmental Protection Plan should be sent to interested parties to comment on prior to commencement of activities can potentially lower risk involved in potential project activities.

b. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge

No concerns or comments were received with respect to Inuit Qaujimaningit or traditional and community knowledge in relation to the proposed project.

5. Proponent's Response to Public Comments and Concerns

On April 8, 2021, due to the concerns and questions identified in the comments received from parties, the NIRB provided an opportunity for the Proponent to respond to the concerns raised during the commenting period. The following is a summary of the Proponent's response to concerns as received on April 26, 2021:

- In response to recommended mitigation measures for non-hazardous waste facility and landfarm activities, the Proponent noted appreciation and the suggested measures will be considered for integration into the Project's planning phase;
- In response to comments regarding treatment and disposal methods of combustible waste, the Proponent noted that 5,000 lbs of combustible wastes ash will be deposited in the existing solid waste facility and also noted that the wastes and disposal method are still within design stages, however it is anticipated that waste will be de-watered and disposed in either the existing solid waste facility or off-site, at an approved location;
- In response to concerns regarding the Environmental Protection Plan being sent to interested parties for review, the Proponent noted the plan will be part of the construction tender process and a requirement for the successful contractor to provide, to ensure compliance with regulations and execution of mitigation measures;
- In response to concerns regarding the Proponent prioritizing the employment and training of local Inuit, the Proponent noted that local Inuit individuals will be hired throughout the duration of the project. Furthermore, these groups, as well as other interested organizations, communities and Inuit businesses, will also be further notified prior to any procurement/employment opportunities being made public.

6. Time of Report Extension

As a result of the time required to accommodate opportunity for the Proponent to respond to concerns raised during the public commenting period, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the *Nunavut Agreement* and s. 92(3) of the *NuPPAA*. Therefore, on April 27, 2021 the NIRB wrote to the Minister of Northern Affairs, Government of Canada, seeking an extension to the 45-day timeline for the provision of the Board's Report.

ASSESSMENT OF THE PROJECT PROPOSAL IN ACCORDANCE WITH PART 3 OF *NUPPAA*

In determining whether a review of the project is required, the Board considered whether the project proposal had potential to result in significant ecosystemic or socio-economic impacts.

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under s. 90 of the *NuPPAA*. The Board took particular care to take into account Inuit

Qaujimaningit, traditional and community knowledge in carrying out its assessment and determination of the significance of impacts.

The following is a summary of the Board's assessment of the factors that are relevant to the determination of significant impacts with respect of this project proposal:

Factor	Comment
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	▪ The physical footprint of the proposed project components is within the Eureka High Arctic Weather Station footprint. ▪ The proposed project would take place within habitats of far-ranging wildlife species such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears.
The ecosystemic sensitivity of that area.	▪ No specific areas of ecosystemic sensitivity have been identified by the Proponent within the physical footprint of the proposed project.
The historical, cultural and archaeological significance of that area.	▪ No specific areas of historical, cultural and archaeological significance have been identified by the Proponent within the physical footprint of the proposed project.
The size of the human and the animal populations likely to be affected by the impacts.	▪ The proposed project is unlikely to result in impacts to local human and animal populations.
The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the impacts; and the reversibility or irreversibility of the impacts.	▪ A zone of influence of up to 20 km from the most potentially-disruptive project activities was selected for the NIRB's assessment. ▪ With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur.
The cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out.	▪ The NIRB has not identified any past, present, and reasonably foreseeable projects at this time; however, the mitigation measures recommended by the NIRB have been designed to reduce cumulative effects should projects occur in the area in the future.
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	▪ The proposed project would update the waste management facilities at HAWS thus reducing potential impacts on the environment from the facility's activities.

VIEWS OF THE BOARD

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provide the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified.

The NIRB has listed specific Acts and Regulations below that may be applicable to the project proposal but this list should not be considered as a complete list and the Proponent is responsible to ensure that it follows all Acts and Regulations that may be applicable to the project proposal.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Valued Component	Terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears from project activities
Potential effects:	Potential adverse effects to terrestrial wildlife such as migratory and non-migratory birds, Arctic fox, Arctic hare, and Species at Risk such as Polar Bears from noise and visual disturbance generated from the construction activities, incinerating activities, as well as the development of a new raw water storage reservoir, landfarm, and landfill.
Nature of Impacts:	The potential for impacts is considered to be limited due to infrequent and temporary activities and any resulting impacts would be expected to be reversible
Mitigating Factors:	Proponent proposes to ensure construction activities occur with minimal impact to wildlife. The proposed activities are taking place at the existing HAWS facility, and thus additional impacts are expected to be minimal.
Proposed Terms and Conditions:	Waste Management – 9 and 10 Wildlife General – 24 through 28 Migratory Birds and Raptor Disturbance – 29 and 30
Related Acts and/or Regulations:	1. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (http://laws-lois.justice.gc.ca/eng/acts/M-7.01/). 2. The *Species at Risk Act* (http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html). Attached in **Appendix A** is a list of Species at Risk in Nunavut. 3. The *Wildlife Act (Nunavut)* and its corresponding regulations (http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html).

Valued Component	Land, terrestrial vegetation, and ground stability
Potential effects:	Potential adverse impacts to the ground stability, vegetation quality, and terrain due to the removal of contaminated soils, creation of a landfarm and landfill, moving of equipment and personnel, and construction activities.
Nature of Impacts:	The potential for impacts is considered to be limited if regulations and best practices for construction operations and landfill and landfarm operations are followed. The potential for disturbance due to other activities is considered to be minimal due to the localized and temporary nature of the activities.
Mitigating Factors:	The Proponent also has committed to developing a *Spill Contingency Plan* that would be implemented as required. Further, combustible disturbance to the land would be minimal and waste generated by the project would be disposed of properly. Noncombustible and hazardous waste would be taken for proper disposal.
Proposed Terms and Conditions:	Waste Management – 9 and 10 Fuel and Chemical Storage – 11 through 20 Landfarm Operations – 21 and 22 Landfill Operations - 23 Road and Ground Disturbance – 31 Land Use and Restoration of Disturbed Areas – 32 through 36
Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Environment (land, water and air)
Potential effects:	Potential negative effects from the establishment of a landfarm and landfill.
Nature of Impacts:	Landfarm and landfill operations could increase risks of contamination in the environment from waste and contaminated soils.

Mitigating Factors:	Adhering to the NIRB's terms and conditions as well as regulations and the respective authorizations for the operation of landfarm and landfill activities would allow for the safe operation of these facilities.
Proposed Terms and Conditions:	Landfarm Operations – 21 and 22 Landfill Operations - 23
Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Environmental Guidelines for the Management of Hazardous Waste, Government of Nunavut, Revised October 2010 (https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf). 4. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Environment (land, water and air)
Potential effects:	Potential positive effects from the remediation activities including the identification and removal of hazardous wastes, uncontrolled wastes, and contaminated soil remediation.
Nature of Impacts:	Treating and removing contaminated soils, removing and disposing of structures and disposing of hazardous waste and site debris will reduce some of the environmental risks at the Eureka High Arctic Weather Station which could contribute to more serious contamination and environmental degradation without intervention.
Mitigating Factors:	Adhering to the NIRB's terms and conditions as well as the respective authorizations, it is expected that the project would provide an increase to the ecosystemic and environmental integrity of the area.
Proposed Terms and Conditions:	Landfarm Operations – 21 and 22 Landfill Operations - 23 Land Use and Restoration of Disturbed Areas – 32 through 36

Related Acts and/or Regulations:	1. Environmental Guidelines for the Management of Contaminated Sites, Department of the Environment, Government of Nunauvt, Revised December 2014 (http://www.gov.nu.ca/sites/default/files/contaminated_sites_remediation_2014.pdf). 2. Environmental Guideline for Contaminated Site Remediation, Department of the Environment, Government of Nunavut; Revised March 2009 (https://www.gov.nu.ca/sites/default/files/Guideline%20Contaminated%20Site%20Site%20Remediation.pdf). 3. Environmental Guidelines for the Management of Hazardous Waste, Government of Nunavut, Revised October 2010 (https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf). 4. Solid Waste Management for Northern and Remote Communities (Environment and Climate Change Canada, 2017) (https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/environment/northern-remote-communities.html).

Valued Component	Water and Fish Habitat
Potential effects:	Potential impacts to water quantity and quality and fish habitat due to the withdrawal of water from West Remus and Black Top Creeks
Nature of Impacts:	The potential for impacts is applicable to a small geographic area and considered to be low probability, and low in magnitude, infrequent, and reversible. Standard operating procedures would mitigate most risks.
Mitigating Factors:	The Proponent will be required to abide by the terms of the amended water license issued by the Nunavut Water Board and any requirements of the Department of Fisheries and Oceans.
Proposed Terms and Conditions:	Other – 37 and 28
Related Acts and/or Regulations:	1. The *Fisheries Act* (http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html). 2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (http://laws-lois.justice.gc.ca/eng/acts/n-28.8/).

Valued Component	Public and traditional land use activities
Potential effects:	No specific concerns or impacts to public and traditional land use activities in the area have been identified, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not interfere with Inuit wildlife harvesting or traditional land use

	activities.
Nature of Impacts:	Potential for impacts is considered to be minimal due to the location of the project.
Mitigating Factors:	Proponent will follow the Wildlife and Wildlife Habitat Management Plan to minimize impacts to wildlife and has committed to executing its work in a way that minimizes the negative effects to wildlife.
Proposed Terms and Conditions:	Other – 37 through 39
Related Acts and/or Regulations:	N/A

Socio-economic effects on northerners:

Valued Component	Historical, archeological, and heritage sites
Potential effects:	No historical sites in the proposed project area were identified by the Proponent, however, the Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not negatively effect historical or heritage sites.
Nature of Impacts:	The Proponent has committed to conducting an archeological assessment for all areas that haven't been previously assessed.
Mitigating Factors:	As noted, the Board is recommending terms and conditions to ensure that project activities do not negatively effect historical or heritage sites.
Proposed Terms and Conditions:	Other – 37 and 38
Related Acts and/or Regulations:	1. The *Nunavut Act* (http://laws-lois.justice.gc.ca/eng/acts/N-28.6/). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.

Valued Component	Local hiring, contracting and economic impact
Potential effects:	Potential positive impacts from the hiring of local community members for various projects and activities.
Nature of Impacts:	Potential for impacts is considered to be positive if the Proponent adheres to its commitment to hiring locally to the extent possible.
Mitigating Factors:	The Board is recommending terms and conditions to ensure that the Proponent continues to inform the communities of the ongoing site activities and to ensure community members are aware of and best able to successfully connect with hiring opportunities.
Proposed Terms and Conditions:	Other – 37 and 39
Related Acts and/or Regulations:	N/A

Significant public concern:

Valued Component	Public concern
Potential effects:	No significant public concern was expressed during the public commenting period for this file, however, the Board recommends terms and conditions to ensure project activities do not interfere with Inuit wildlife harvesting or traditional land use activities, to the extent possible hire local people and access local services where possible, and to ensure planned activities in the area utilizes available Inuit Qaujimaningit.
Nature of Impacts:	The potential for impacts is considered to be minimal as long as the Proponent follows the recommended terms and conditions.
Mitigating Factors:	Given the distance from the closest community, direct impacts on Inuit are considered highly unlikely and are addressed through the proposed terms and conditions.
Proposed Terms and Conditions:	Other – 37 through 39
Related Acts and/or Regulations:	N/A

Technological innovations for which the effects are unknown:

- No specific issues have been identified associated with this project proposal.

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-5.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending the following specific terms and conditions to apply in respect of the project:

General

1. Environment and Climate Change Canada (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times and make it accessible to enforcement officers upon request.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 149476) and the NIRB

(Online Application Form, March 4, 2021). This information should be accessible to enforcement officers upon request.

3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.
4. The Proponent shall ensure that it meets the standards and/or limits as set out in the authorizing agencies' permits or licences as required for this project.
5. The Proponent shall ensure that all personnel, staff and contractors are adequately trained prior to commencement of all project activities, and shall be made aware of all operational plans, management plans, guidelines and Proponent commitments relating to the project.

Water courses/Water bodies (including fresh and marine waters)

6. The Proponent shall not extract water from any fish-bearing water body unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams should not be used for water withdrawal unless otherwise authorized by the appropriate authorizing agency.
7. The Proponent shall ensure that no disturbance of the stream bed, lake bed or the banks of any definable watercourse be permitted, except where deemed necessary for maintaining project-specific operational commitments or approved by a responsible authority in cases of spill management.
8. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including wastewater) or sediment into any water body. The Proponent should have in place an Emergency Spill Response Plan that is approved by the appropriate authorizing agency(ies).

Waste Management

9. The Proponent shall manage all hazardous and non-hazardous waste including food, domestic wastes, debris and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) in such a manner to avoid release into the environment and access to wildlife at all times until disposed of appropriately or at an approved facility.
10. The Proponent shall incinerate all combustible wastes as needed and dispose of as required by the appropriate authorizing agencies. All non-combustible wastes from the project site shall be removed to an approved facility for disposal.

Fuel and Chemical Storage

11. The Proponent shall locate all fuel and other hazardous materials a minimum distance away from the high-water mark of any water body and environmentally sensitive areas as required by the appropriate authorizing agencies. The materials shall be stored in such a manner as to prevent their release into the environment.
12. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.

13. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum distance away from the high-water mark of any water body as required by the appropriate authorizing agencies.
14. Fuel and hazardous material storage areas and fuel lines should be clearly marked with signs or flagging to avoid accidental breaks and punctures, and to ensure areas remain visible during the winter months.
15. All fuel and chemical storage containers must be clearly marked with the Proponent's name for ease of identification.
16. The Proponent shall routinely inspect and document the conditions of fuel and hazardous material storage containers and containment areas as required by the appropriate authorizing agencies. Fuel containment areas shall be kept clear of debris, water and snow to facilitate inspections for leaks.
17. The Proponent shall have a Spill Contingency Plan in place at all fuel storage or transfer locations and shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available.
18. The Proponent shall follow the authorizing agencies' direction for management and removal of hazardous materials and wastes (e.g., contaminated soils, sediment and waste oil).
19. The Proponent shall ensure that wildlife deterrent systems are utilized at the time of a spill incident in order to avoid wildlife (terrestrial or marine) and migratory birds from being contaminated.
20. The Proponent shall ensure that all spills of fuel or other deleterious materials of 100 litres or more must be reported immediately to the 24-hour Spill Line at (867) 920-8130.

Landfarm Operations

21. The Proponent shall treat only petroleum and hydrocarbon contaminated soils at the landfarm facility. Materials contaminated with other substances such as glycol and heavy metals are not to be stored at the landfarm and must be disposed of at an authorized facility.
22. The Proponent shall ensure that the equipment used for aeration in the landfarm operation have been cleaned off within the landfarm facilities prior to exiting.

Landfill Operations

23. The Proponent shall dispose of non-hazardous materials only at the landfill and shall limit this disposal to those materials listed as acceptable for disposal. Hazardous materials, materials listed as unacceptable for disposal at the landfill, or materials that contain asbestos, fluorescent tubes or ozone depleting substances are not to be disposed of in the landfill and must be disposed of at an authorized facility.

Wildlife – General

24. The Proponent shall not substantially alter or damage or destroy any wildlife habitat in conducting this operation unless otherwise authorized by the appropriate authorizing agencies.

25. The Proponent shall not chase, weary, harass or molest wildlife. This includes persistently circling, chasing, hovering over, pursuing or in any other way harass wildlife, or disturbing large groups of animals.
26. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
27. The Proponent shall ensure that all wildlife have the right-of-way on any roads or trails. Vehicles are required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across roads or trails at any location.
28. The Proponent shall enforce safe speed limits for vehicles travelling along the road to ensure drivers have sufficient time to react in a safe manner if wildlife are encountered on or adjacent to the road or trail.

Migratory Birds and Raptors Disturbance

29. The Proponent shall carry out all phases of the project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The Proponent's actions in applying the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.
30. The Proponent shall not disturb or destroy the nests or eggs of any birds. If active nests of any birds are discovered or located (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have naturally left the vicinity of the nest by establishing a protection buffer zone[1] appropriate for the species and the surrounding habitat.

Road and Ground Disturbance

31. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.

Land Use and Restoration of Disturbed Areas

32. The Proponent shall use existing trails where possible during project activities on the land.
33. The Proponent shall ensure that the land use area is kept clean and tidy at all times.
34. The Proponent shall avoid disturbance on slopes prone to natural erosion, and alternative locations shall be utilized.
35. The Proponent shall remove all garbage, fuel and equipment at the end of each field season and/or upon completion of work and/or upon abandonment.
36. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state using Best Available Technology Economically Achievable (BATEA) upon completion of work and/or abandonment.

1 Recommended setback distances to define buffer zones have been established by Environment and Climate Change Canada for different bird groups nesting in tundra habitat and can be found at www.ec.gc.ca/paom-itmb.

Other

37. The Proponent should consult with local residents regarding their activities in the area and solicit available Inuit Qaujimaningit and information that can inform project activities.
38. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
39. The Proponent should, to the extent possible, hire local people and access local services where possible.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Change in Project Scope

1. Responsible authorities or Proponent shall notify the Nunavut Planning Commission and/or Parks Canada as appropriate, and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this project prior to any such change.

Copy of licences, etc. to the Board and Commission

2. The NIRB respectfully requests that responsible authorities submit a copy of each licence, permit or other authorization issued for the Project to the NIRB to assist in enabling possible project monitoring that may be required. Please forward a copy of the licences, permits and/or other authorizations to the NIRB directly at info@nirb.ca or upload a copy to the NIRB's online registry at www.nirb.ca.

Use of Inuit Qaujimaningit

3. The Proponent is encouraged to work with local communities and knowledge holders to inform project design, to carry out the project, and to confirm or validate the perspectives represented in publications produced as part of the project. Care should be taken to ensure that Inuit Qaujimaningit and local knowledge collected for the project is used with permission and is accurately represented.

Bear and Carnivore Safety

4. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link: https://www.enr.gov.nt.ca/sites/enr/files/resources/safety_in_grizzly_and_black_bear_country_english.pdf.

5. There are Polar Bear and grizzly bear safety resources available from the Bear Smart Society with videos on Polar Bear safety available in English, French and Inuktitut at http://www.bearsmart.com/play/safety-in-polar-bear-country/. Information can also be

obtained from Parks Canada's website on bear safety at the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.

6. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Grise Fiord, phone: (867) 980-4164).

Species at Risk

7. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link: http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Migratory Birds

8. The Proponent review Canadian Wildlife Services' "Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut", available at the following link: http://publications.gc.ca/site/eng/317630/publication.html and "Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories", available at the following link: http://publications.gc.ca/site/eng/392824/publication.html. The guide provides information to the Proponent on key terrestrial and marine habitat areas that are essential to the welfare of various migratory bird species in Canada.

9. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment and Climate Change Canada's Incidental Take web page and the fact sheet "Planning Ahead to Reduce the Risk of Detrimental Effects to Migratory Birds, and their Nests and Eggs" available at: http://publications.gc.ca/collections/collection_2013/ec/CW66-324-2013-eng.pdf.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Environment and Climate Change Canada's "Landfarm, Solid Waste Non-Hazardous Facility, Water and Sewage Treatment Infrastructure Upgrades for the Eureka High Arctic Weather Station". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated May 13, 2021 at Baker Lake, NU.

Kaviq Kaluraq, Chairperson

Attachments: Appendix A: Species at Risk in Nunavut
Appendix B: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

APPENDIX A: SPECIES AT RISK IN NUNAVUT

Due to the requirements of Section 79(2) of the Species at Risk Act (SARA), and the potential for project-specific adverse effects on listed wildlife species and its critical habitat, measures should be taken as appropriate to avoid or lessen those effects, and the effects need to be monitored. Project effects could include species disturbance, attraction to operations and destruction of habitat. This section applies to all species listed on Schedule 1 of SARA, as listed in the table below, or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which may be encountered in the project area. This list may not include all species identified as at risk by the Territorial Government. The following points provide clarification on the applicability of the species outlined in the table.

- Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term "listed" species refers to species on Schedule 1.
- Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- Some species identified at risk by COSEWIC are "pending" addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

If species at risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the species at risk Registry at http://www.sararegistry.gc.ca for information on specific species.

Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of species at risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.

For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Mitigation and monitoring measures must be undertaken in a way that is consistent with applicable recovery strategies and action/management plans.

Schedules of SARA are amended on a regular basis so it is important to check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

Updated: September 2019

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Threatened	Schedule 1	ECCC
Peregrine Falcon	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torngat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	ECCC
Peary Caribou	Endangered	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	ECCC
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO

2 The Department of Fisheries and Oceans has responsibility for aquatic species.

3 Environment and Climate Change Canada (ECCC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

Terrestrial Species at Risk[2]	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility[3]
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
Fish			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

APPENDIX B: ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS

INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

TERMS AND CONDITIONS

1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

	Types of Development (See Guidelines below)	**Function** (See Guidelines below)
a)	Large scale prospecting	Archaeological/Palaeontological Overview Assessment
b)	Diamond drilling for exploration or geotechnical purpose or planning of linear disturbances	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/or Mitigation

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*[4] to issue such permits.

[4] P.C. 2001-1111 14 June, 2001

2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.

4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.

5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.

6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.

7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.

8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.

9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.

10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*):

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology
Under the *Nunavut Act*[5], the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*[6], it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions
As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

> *"archaeological site" means a place where an archaeological artifact is found.*
>
> *"archaeological artifact" means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).*
>
> *"palaeontological site" means a site where a fossil is found.*
>
> *"fossil" includes:*
> *Fossil means the hardened or preserved remains or impression of previously living organisms or vegetation and includes:*
> *(a) natural casts;*
> *(b) preserved tracks, coprolites and plant remains; and*
> *(c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates.*

Guidelines for Developers for the Protection of Archaeological Resources in the Nunavut Territory

(**Note:** Partial document only, complete document at: www.ch.gov.nu.ca/en/Archaeology.aspx)

Introduction
The following guidelines have been formulated to ensure that the impacts of proposed developments upon heritage resources are assessed and mitigated before ground surface altering activities occur. Heritage resources are defined as, but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historic buildings and cairns Effective collaboration between the developer, the Department of Culture, and Heritage (CH), and the contract archaeologist(s) will ensure proper preservation of heritage resources in the Nunavut Territory. The roles of each are briefly described.

CH is the Nunavut Government agency which oversees the protection and management of

[5] s. 51(1)
[6] P.C. 2001-1111 14 June, 2001

heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (*Nunavut Agreement*)), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*

- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*
- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*
- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources*.

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and

- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.

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Attachment C

Waste Management Plan for Eureka High Artic Weather Station & the Emergency Plan for Petroleum and Allied Petroleum Products

Waste Management Plan
For
Eureka High Arctic Weather Station

Prepared for:
Atmospheric Environment Service
Environment Canada (Prairie & Northern Region)

Prepared by:
Environmental Services
(Western and Northern Region)

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

Canad

WASTE MANAGEMENT PLAN
FOR
EUREKA HIGH ARCTIC WEATHER STATION

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1.0 INTRODUCTION

One of the key components to sustainable development and environmental protection is pollution prevention. Canadian Council of Ministers of the Environment state that "minimizing or avoiding the creation of pollutants and wastes can be more effective in protecting the environment than treating them, or cleaning them up after they have been created."

Pollution prevention reduces or eliminates waste generation; prevents transfer of pollutants from one medium to another; minimizes health risks; optimizes energy, materials and resources use; reduces enforcement requirements; prevents costly clean-ups; promotes a more competitive economy. Pollution prevention is also more cost effective, in many cases, than less environmentally responsible actions.

The intended audience for this manual is facility managers and personnel responsible for the on-going operation of the Eureka High Arctic Weather Station. The document is intended to be updated on a frequent basis reflecting changes in operation and personnel.

Guidance for development of this plan is in accordance with Preventing Site Contamination at Federal Facilities: A Guidance Manual.

2.0 OBJECTIVES

The primary objective of the *waste management plan* is to address pollution prevention practices for the common activities at the Eureka Wether Station which may lead to health and safety, as well as environmental risks. The waste management plan focuses on providing pollution prevention strategies by specifying best practices which are practicable yet ensure both due diligence and environmental stewardship. Each chapter is designed to stand alone and outlines key concepts in waste management.

The specific objectives in each chapter of the *waste management plan* were to:

1) identify the environmental and health and safety concerns,
2) define existing site conditions regarding those concerns,
3) provide relevant legislation and guidelines, and
4) propose prevention strategies.

These objectives were applied to the following waste management issues:

- ✓ **Management Practices** - policies, training, record keeping, and review
- ✓ **Spill Response** - emergency planning, equipment, training, and reporting
- ✓ **Chemical Use, Transportation, and Storage** - procedures, alternatives, and recording
- ✓ **Petroleum Use, Transport, and Storage** - procedures, alternatives, and recording
- ✓ **Operational Waste** - operational waste stream composition and disposal
- ✓ **Construction & Demolition Waste** - C & D, bulky waste composition/disposal
- ✓ **Hazardous Waste** - procedures, alternatives, training, and recording

3.0 MANAGEMENT PRACTICES

This chapter describes organizational best practices in the prevention of site contamination and health and safety risks.

3.1 HEALTH AND SAFETY

The Canada Labour Code regulates health and safety requirements in the workplace, and is the driving force behind waste management. Compliance with these requirements benefits the environment at the same time, due to common goals. For instance, pollution prevention activities like hazardous materials labeling, spill response planning, personnel training, etc. are consistent with health and safety initiatives. A health and safety program should be updated to address the following key elements:

- health and safety policy;
- roles and responsibilities;
- standard operating procedures;
- education and training;
- health and safety committees;
- engineering controls;
- workplace inspections;
- personal protective equipment;
- medical surveillance;
- incident and accident investigations;
- emergency procedures;
- first aid; and
- workplace monitoring.

3.2 TRAINING

Each individual at the Weather Station can and should contribute to pollution prevention. The day to day behaviour of all staff are the root of pollution prevention. Ongoing training and communication programs are essential to prevent site contamination and should:

- address use, storage and disposal of wastes;
- be provided and maintained for all personnel; and,
- incorporate health and safety initiatives.

The goal of training and communication must be employee cooperation and support for

environmental policies and objectives. It should also encourage employee input to obtain fresh insight into additional opportunities to improve waste management procedures.

While many current staff members have been provided with WHMIS and TDG training, a program must be instituted to ensure the training is kept current and that new employees receive appropriate training.

3.3 RECORD KEEPING

Routine record keeping is important for operating a facility with due diligence. A record system should be developed which will document station policies and procedures.

i. ***Environmental records*** should be kept at each functional area that could contribute to site contamination. Items to be recorded in environmental records include:
   - environmental objectives, activities and responsibilities;
   - compliance requirements;
   - site plan with map of hazardous material activities; and,
   - operations having environmental effect.

ii. ***Operational practice records*** should detail how specific operational activities should be performed if prevention it to be prevented. These records must be easily accessible to personnel performing the activity and may include:
   - detailed descriptions of practices and procedures to prevent pollution;
   - first-responder spill procedures; and,
   - personnel's job descriptions.

Intrinsically, all records must be kept up-to-date, organized, and legible.

3.4 PREVENTATIVE MAINTENANCE

Preventative maintenance is beneficial in several ways that result in:

i. less frequent equipment replacement because of extended equipment life;
ii. reduced fluid and chemical requirements due to minimizing accidental spills of equipment fluids and chemicals that are common in poorly maintained equipment;

A preventative maintenance program should be developed to include the following:

- establishment of a maintenance schedule for equipment;
- appropriate facilities and infrastructure; and,
- service maintenance records.

3.5 SELECTION OF RESPONSIBLE CONTRACTORS

Contractors who are selected to perform work at Eureka must be capable and willing to comply with site pollution prevention objectives. To ensure compliance:

- certified or professionally registered personnel should be used;
- objectives, requirements, and acceptable materials should be detailed in tender documents;
- contractors are to be debriefed on facility environmental policies;
- contractor activities should be audited on and off site.

3.6 ENVIRONMENTAL REVIEW

There are several review methods that can be used to assess environmental performance at Eureka. It is recommended that following environmental review schedule be maintained:

i. ***Follow-up Environmental Audits*** should be performed every three years to identify compliance in environmental requirements and to make improvements where necessary. Follow-up audits will ascertain whether recommendations from previous audits have been acted upon, as well as determining the effectiveness of the waste management plan.

ii. ***Environmental Impact Assessments***, under the Canadian Environmental Assessment Act, should be performed each time a project is proposed.

iii. An ***Environmental Site Investigations*** should be undertaken to determine presence and extent of environmental degradation from current or past station activities.

4.0 SPILL RESPONSE

4.1 ISSUE IDENTIFICATION

A spill or accidental release of hazardous materials or hazardous waste into the environment can lead to wide-spread contamination. This can be particularly devastating in areas like the arctic tundra which has limited capacity to remediate itself after a spill has occurred. Cleaning up a spill can be extremely expensive if emergency steps are not taken as soon as the spill is identified. Personnel who are trained in emergency response can contain the spilled material, thereby protecting sensitive areas from contamination, and reducing costs for cleaning up later.

Developing a spill response plan is the most important component of effective spill response. Proper equipment and training are in place to act on the plan if a spill occurs. This is critical in all situations, but is especially important for Eureka because it is so isolated.

This section of the report provides information on the spill response plan, equipment and procedures.

4.2 SITE STATUS

A spill response flow chart and information sheet is posted within the OIC's office. This document describes the appropriate chain of events for reporting spills to either territorial or provincial agencies (depending on availability)in order to get direction for clean-up actions. As well, a list of required information to pass on to emergency co-ordinators, such as quantities, substance, direction of spill movement, etc., is included. A list of departmental emergency co-ordinators (as of May 1993), their roles, contact telephone numbers and alternates, is also posted.

While there are several bags of absorbent material on site available to deal with small fuel and chemical spills, there are no prepared spill kits set up within any of the Eureka facilities. Heavy equipment, such as front end loaders and backhoes can be used to quickly excavate contaminated soil or contain spills with temporary berms.

A comprehensive site emergency spill response plan with declared emergency contacts is not maintained.

4.3 APPLICABLE STANDARDS

Both federal and territorial compliance standards that are directly applicable to spill response. Compliance standards also exist for the development of spill response plans, responding to spills and restoration of areas contaminated from a spill. Table 4-1 summarizes compliance standards applicable to a spill, though this list is not exhaustive.

Related topics addressed in this manual include:

Section 5 - Chemical Use, Transport and Storage
Section 6 - Petroleum Product Use, Transport and Storage

TABLE 4-1: SPILL RESPONSE - Selected Compliance Standards

Standard Name	Specific Standard	Applicability
Canadian Environmental Protection Act	Section 36	Spill reporting requirements and remedial requirements for toxic substances
Northwest Territories Environmental Protection Act	Spill Contingency Planning and Reporting Regulations	Spill reporting requirements and remedial requirements for toxic substances
Canadian Environmental Protection Act	Storage of PCB Materials Regulations	Requirements for the storage of PCB containing materials, including emergency response
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials including Workplace Hazardous Materials Information System implementation and emergency preparedness
Hazardous Products Act	Controlled Products Regulations	Identifies products which are subjected to Workplace Hazardous Materials Information System (WHMIS) requirements, as well as supplier requirements for material safety data sheets (MSDSs) and labels
National Fire Code of Canada	National Research Council	Requirements for fire safety plans and spill control for hazardous material storage
Transportation of Dangerous Goods Act	Transportation of Dangerous Goods Regulations	Procedures and requirements for transporting dangerous goods. Dangerous goods criteria used by CEPA to define hazardous wastes.
Northwest Territories Environmental Protection Act		Requirements for the protection of the environment.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

4.4 PROPOSED STRATEGY: SPILL RESPONSE

The purpose of the spill response section of this Waste Management Plan is to identify the steps involved in providing personnel with the proper training, equipment and drills to respond quickly and appropriately should a spill occur. These steps are identified in sections 4.4.2 through 4.4.4.

A. Spill Response Plan

- Appoint a spill response co-ordinator;
- Identify and train key personnel and response team members;
- Make employees aware of the spill response plan;
- Compile a list of parties to contact in the event of a spill;
- Post federal and territorial environmental emergency numbers (including the CANUTEC 24-hour Emergency Number 613-996-6666);
- Post spill response instructions at central locations;
- Compile an inventory of stored chemicals;
- Establish response plans for each storage location and chemical type;
- Carry out drills regularly and improve procedures from these experiences;
- Ensure the spill response plan includes containment procedures for all types of weather conditions;
- Identify locations for containment boom placement on watercourses;
- Identify potential hazards to the response team and incorporate into the response action;

B. Spill Response Equipment

- Ensure that the necessary response supplies and equipment are on-site and accessible;
- Develop a communication plan;
- Equip vehicles with spill kits;

C. Spill Response Procedures

- Recover spilled products to the extent reasonably possible;
- Reuse and recycle spilled products where possible;
- Dispose of hazardous wastes properly;
- Rehabilitate the area affected by the spill;
- Record all aspects of the spill and response effort;
- Review and improve the plan based on experience.

4.5 ADDITIONAL REFERENCES

Canadian Standards Association. *Emergency Planning for Industry: Major Industrial Emergencies, CAN/CSA-Z731-95.* 1995.

CANUTEC. *Dangerous Goods Initial Emergency Response Guide.* 1996. (Telephone information: 613-992-4624).

CANUTEC 24 Hour Emergency Number: 613-996-6666 (Collect calls accepted).

Environment Canada, Environmental Protection, Saskatchewan Division. *Emergency Response Training for First Nations: Environmental First Responder Awareness.*

Spill Technology Newsletter. Vol. 19(4), October - December 1994.

Transport Canada Airports Group. *Environmental Emergency Manual.* 1995.

5.0 CHEMICAL USE, TRANSPORT AND STORAGE

5.1 ISSUE IDENTIFICATION

Chemicals used and stored at Eureka High Arctic Weather Station are numerous and diverse. Because of Eureka's unique isolated situation, many chemicals that may be required for vehicle and site maintenance must be stored on-site. Sometimes these chemicals are not used for extended periods of time because they are not immediately required, but they have to be on-site should an requirement occur.

The Transportation of Dangerous Goods Act and Regulations (TDGA, TDGR) classifies hazardous substances into nine classes of dangerous goods. The National Fire Code of Canada uses these classifications as the basis for determining the storage and handling requirements for hazardous materials. The Workplace Hazardous Materials Information System (WHMIS) provides information on labeling hazardous waste containers, availability of material safety data sheets (MSDS) and provision of worker education programs on hazardous waste used in the workplace. Table 5-1 provides information on the nine TDGA classes, and their approximate WHMIS equivalent.

Topics discussed in this section include chemical use, transport and handling procedures and equipment.

5.2 SITE STATUS

Chemicals are currently stored in a variety of locations around the Eureka HAWS. This includes small compounds near the tank farm, surrounding the DND warehouse, within the bombardier garage, the hydrogen building and the maintenance garage. There is a mixture of chemicals housed at each location, depending on the particular operation occurring nearby. None of the locations are secured nor have any means of containing spills. There is currently no complete site inventory maintained of types and volumes of chemicals on site.

There are posted MSDSs at several locations around the station. For example, all chemicals used at the hydrogen building are accounted for with MSDSs in a binder in the main control room of the building. A binder within the OIC's office contains copies of all MSDS for Eureka and a complete list of the available sheets is maintained on computer.

All employees receive WHMIS training prior to arrival on site. At a minimum, both the OIC and the equipment operator or mechanic have received training in TDG regulations, and it is the OIC who formally accepts all TDG substances delivered to the station.

5.3 APPLICABLE STANDARDS

Chemical use, transport and storage is directly regulated by legislation and guidelines. Much of the legislation and guidelines is presented in Table 5-2. This is a summary of compliance standards only, and is not all inclusive.

Related topics addressed in this manual include:

Section 4 - Spill Response
Section 6 - Petroleum Products Use, Transport and Storage
Section 9 - Hazardous Waste

TABLE 5-1: HAZARDOUS MATERIALS CLASSIFICATIONS

Transportation of Dangerous Goods Classification	Approximate WHMIS Equivalent	Applicability	Example of Contaminant Sources
Class 1 - Explosives	Not Regulated	Not typically used on site.	
Class 2 - Gases	Class A - Compressed Gases	Welding, empty cylinders.	Acetylene, oxygen
Class 3 - Flammable Liquids	Class B - Flammable and Combustible Material	Site contamination potential. The National Fire Code also regulates combustible liquids. Petroleum products are addressed in section 4.4 of this manual. Flammable liquids used on site.	Paint thinners, metal cleaners, gasoline, diesel, solvents
Class 4 - Flammable Solids; Substances liable to spontaneous combustion; Substances that on contact with water emit flammable gases	Class B - Flammable and Combustible Material Class F - Dangerously Reactive Material	Not typically used on site.	Sodium based batteries
Class 5 - Oxidizing Substances and Organic Peroxides	Class C - Oxidizing Material	Not typically used on site.	Chromic acid plating solution
Class 6 - Poisonous and Infectious Substances	Class D - Poisonous and Infectious Material	Poisonous substances pose human health risks. Poisonous substances used on site.	Paint removers, chlorinated solvents, lead, pesticides
Class 7 - Radioactive Materials	Not Regulated	Not typically used on site.	
Class 8 - Corrosives	Class E - Corrosive Material	Site contamination potential. Not typically used on site.	Mercury, alkaline and lead/acid batteries, plating solutions
Class 9 - Miscellaneous Products or Substances	No Corresponding Class	Site contamination potential. In use on site.	PCBs

Taken from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

TABLE 5-2: CHEMICAL USE, TRANSPORT and STORAGE - Selected Compliance Standards

Standard Name	Specific Standard	Applicability
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials, including Workplace Hazardous Materials Information System implementation and emergency preparedness.
Canadian Environmental Protection Act	Part II	Defines toxic substances.
Canadian Environmental Protection Act	Storage of PCB Materials Regulations	Requirements for PCB containing material storage.
Canadian Environmental Protection Act	Registration of Storage Tank Systems for Petroleum Products and Allied Petroleum Products on Federal Lands Regulations	Requirements for the registration of storage tank systems and for reporting on compliance.
Canadian Environmental Protection Act	Chlorobiphenyls Regulations	Prohibits manufacture, process, use, sale, import or release of chlorobiphenyls.
Fisheries Act	Code of Good Housekeeping Practice for the Metal Finishing Industry, 1977	Metal finishing facility design and operation recommendations.
Guidelines for the Management of Wastes Containing Polychlorinated Biphenyls (PCBs) 1989	Canadian Council of Ministers of the Environment	Guidelines for storage and disposal of PCB containing materials.
Hazardous Products Act	Controlled Products Regulations	Identifies products which are subjected to Workplace Hazardous Materials Information System (WHMIS) requirements, as well as supplier requirements for material safety data sheets and labels
National Building Code of Canada	National Research Council	Criteria for buildings containing storage systems.

TABLE 5-2: CHEMICAL USE, TRANSPORT and STORAGE - Selected Compliance Standards (Continued)

Standard Name	Specific Standard	Applicability
National Fire Code of Canada	National Research Council	Requirements for fire safety plans and spill control for hazardous material storage.
PCB Transformer Decontamination: Standards and Protocols, 1995	Canadian Council of Ministers of the Environment	Procedures for PCB transformer decommissioning.
Transportation of Dangerous Goods Act	Transportation of Dangerous Goods Regulations	Procedures and requirements for transporting dangerous goods. Dangerous goods criteria used by CEPA to define hazardous wastes.
Territorial Lands Act	Territorial Land Use Regulations	Requirements and prohibitions for land use in the Northwest Territories.
Northwest Territories Environmental Protection Act	Environmental Guideline for General Management of Hazardous Waste	Guidelines for the management of hazardous waste, including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Solvents	Guideline for the management of solvents including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Paint	Guideline for the management and storage of waste paint.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Batteries	Guideline for the management and storage of waste batteries.
Northwest Territories Environmental Protection Act	Environmental Guideline for Ozone Depleting Substances	Guideline for the management of ozone depleting substances, including standards to be met.
Northwest Territories Environmental Protection Act	Environmental Guideline for Industrial Waste Discharges	Guideline for the management of industrial waste discharges in the NWT.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Asbestos	Guideline for the management of waste asbestos, including disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Antifreeze	Guideline for the management and storage of waste antifreeze.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

5.4 PROPOSED STRATEGY: CHEMICAL USE, TRANSPORT AND STORAGE

The *Chemical Use, Transport and Storage* section of this Waste Management Plan focuses on identifying types and quantities of chemicals that are used on site and minimizing the numbers of chemicals and chemical storage areas. This section also attempts to ensure that personnel, contractors and equipment used for chemical use, transport and storage comply with government requirements.

A. Chemical Use and Transport

- Identify old or unused chemicals and dispose of properly;
- Substitute less hazardous products for hazardous ones when possible;
- Minimize the number of chemicals used on site;
- Ensure that an emergency spill response plan exists for chemicals on site;
- Provide employees with the appropriate training for chemical handling;
- Ensure appropriate fire protection measures are in place;
- Separate dangerous goods from combustible products adequately;
- Ensure contractors comply with applicable regulations for transporting and handling chemicals;
- Inspect facilities for hazardous building materials and chemicals in equipment;
- Develop a management plan for hazardous building materials and equipment chemicals;

B. Chemical Storage

- Minimize the number of chemical storage locations;
- Ensure chemical spill kits are located at every chemical storage location;
- Maintain an inventory of stored chemicals and track purchases of new chemicals;
- Provide employees with the appropriate training for chemical storage;
- Ensure appropriate fire protection measures are in place;
- Separate dangerous goods from combustible products adequately;
- Follow applicable regulations and codes when designing and constructing storage facilities;
- Ensure storage tanks are compatible with their contents;
- Be sure that leak detection programs are in place for storage tanks;
- Register storage tanks with the appropriate agencies;
- Provide secondary containment for storage areas;
- Equip outdoor dangerous goods storage areas with signs and fences.

5.5 ADDITIONAL REFERENCES

Agriculture Canada. *Storage of Dangerous Substances: Design Guidelines*. Second Edition. 1993.

CANUTEC. *Dangerous Goods Initial Emergency Response Guide.* 1996. (Telephone information: 613-992-4624).

CANUTEC 24 Hour Emergency Number: 613-996-6666 (Collect calls accepted).

Energy, Mines and Resources Canada. *Environmental Protection Guidelines for CANMET Facilities*. 1994.

Environment Canada - Quebec. *Guide for the Management of Hazardous Materials and Hazardous Waste at Federal Facilities in Quebec: Final Report. DDH-93-103.* 1994.

National Fire Code of Canada Changes, *Hazardous Materials Management*, August/September 1996.

6.0 PETROLEUM PRODUCT USE, TRANSPORT AND STORAGE

6.1 ISSUE IDENTIFICATION

Because of its isolation, Eureka High Arctic Weather Station must have enough petroleum products on hand to meet operation requirements for one year, plus a one year contingency supply. This section of the report provides information on the use, transportation and storage of petroleum products, as well as providing pertinent federal and territorial legislation.

Topics discussed in this section include petroleum product use, transport and storage procedures and equipment.

6.2 SITE STATUS

The vast majority of fuel at Eureka is stored within the tank farm system at the northwest corner of the site which has a capacity of almost 1.3 million litres. The system was installed in 1992 and also incorporates three 90,000 litre temporary fuel bladders that were never removed from service. Fuel volumes are monitored regularly and entered monthly into a database tracking fuel use by the OIC. Fuel is delivered once a season, typically in early September, by sea lift and up to 550,000 litres of fuel is pumped to the tank farm. The fuel bladders are needed to ensure a two year storage capacity for the operations is reached.

The ten fuel tanks are located within a bermed area and have several sumps built into the floor of the site. The fuel dispenser pump is outside of the bermed area and does not have any containment. A log book is kept at the pump and entries are checked against weekly tank dip tests and reconciliation. The berm and pipelines are also regularly inspected.

Five new Regal Enviro-Safe 9000 litre tanks were purchased and delivered to Eureka. They have not been placed in service but will replace day tanks located around the site that are for emergency, back-up use only. The powerhouse day tank is checked daily while the garage and incinerator tanks are inspected weekly. The current day-tanks do not meet the National Fire Code or the Technical Guidelines for Aboveground Storage Tanks and none of the tanks have adequate containment.

Barrels of fuel used to support site operations are stored either immediately east of the main site or near the airstrip. Some of the barrels belong to DND, Polar Continental Shelf Project, Bradley Air Services and Kenn Borek Air. Most of the fuel is delivered in the annual sea lift although periodic deliveries of barrels are made by air. There is no containment around any of the barrel storage compounds and the contents of many individual barrels are not labeled.

Waste oil is produced from the power generators and vehicles and is collected in empty 205 L drums until a final decision regarding disposal is made. Approximately 1000 L of waste oil is produced

each year.

6.3 APPLICABLE STANDARDS

Both federal and territorial legislation, codes of practice and guidelines are directly applicable to the storage of petroleum products. These standards, and their applicability are presented in Table 6-1.

Related topics addressed in this manual include:

Section 4 - Spill Response
Section 5 - Chemical Use, Transport and Storage
Section 9 - Hazardous Waste

Table 6-1: PETROLEUM PRODUCT USE, TRANSPORT & STORAGE - Selected Compliance Standards

Standard Name	Specific Standard	Applicability
Alternative Fuels Act		Defines requirements for selecting alternative fuel systems for federal facilities and vehicles.
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials, including Workplace Hazardous Materials Information System Implementation and emergency preparedness.
Canadian Environmental Protection Act	Registration of Storage Tanks Systems for Petroleum Products and Allied Petroleum Products on Federal Lands Regulations	Requirements for the registration of storage tank systems and for reporting on compliance.
Canadian Environmental Protection Act	Technical Guidelines for Aboveground Storage Tank Systems Containing Petroleum Products	Required design criteria and operating procedures for aboveground storage tank systems.
Canadian Environmental Protection Act	Parts II and IV	Defines toxic substances. Authority to regulate waste handling and disposal practices, effluent and emissions due to activities of federal organizations.
Code of Practice for Used Oil Management in Canada, 1989	Canadian Council of Ministers of the Environment	Used oil management practices.
CSA B139 Installation Code for Oil Burning Equipment	Canadian Standards Association	Requirements for fuel storage for heating and emergency generator systems.
Northwest Territories Environmental Protection Act	Used Oil and Waste Fuel Management Regulations (DRAFT)	Draft requirements for used oil and waste fuel management, including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guidelines for General Management of Hazardous Waste in the NWT	Guidelines for management of hazardous materials in the Northwest Territories, including storage and disposal options.

TABLE 6-1: PETROLEUM PRODUCT USE, TRANSPORT & STORAGE - Selected Compliance Standards (Continued)

Standard Name	Specific Standard	Applicability
Hazardous Products Act	Controlled Products Regulations	Identifies products which are subjected to Workplace Hazardous Materials Information System (WHMIS) requirements, as well as supplier requirements for material safety data sheets and labels.
National Fire Code of Canada	National Research Council	Requirements for fire safety plans and spill control for hazardous material storage.
National Building Code of Canada	National Research Council	Criteria for buildings containing storage systems.
National Transportation Act	Flammable Liquids Bulk Storage Regulations	Regulates storage on railway right of ways.
Transportation of Dangerous Goods Act	Transportation of Dangerous Goods Regulations	Procedures and requirements for transporting dangerous goods. Dangerous goods criteria used by CEPA to define hazardous wastes.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

6.4 PROPOSED STRATEGY: PETROLEUM PRODUCT USE, TRANSPORT AND STORAGE

This section of the Waste Management Plan focuses on the safe use, transport and storage of petroleum products used at Eureka from an environmental and health & safety perspective. Minimizing types of petroleum products and consolidating their storage areas to the extent that is reasonable is addressed. Training personnel, and procedures for dealing with unused petroleum product equipment are discussed.

A. Petroleum Product Use and Transport

- Minimize the number of different types of petroleum products;
- Replace petroleum products with alternative fuels where possible;
- Provide training in hazardous materials handling and storage to station personnel.

B. Petroleum Product Storage

- Minimize and consolidate petroleum product storage areas;
- Maintain an inventory of stored petroleum products;
- Follow applicable regulations and codes to design and construct storage facilities;
- Provide training in hazardous materials handling and storage to station personnel.
- Decommission unused or abandoned tanks and fuel bladders;
- Petroleum storage tanks should have secondary containment;
- Ensure leak detection programs are in place for storage tanks;
- Maintain registration of storage tanks with Environment Canada;
- Provide drum storage areas with secondary containment or store away from sensitive areas;
- Store and label drums in an organized manner;

6.5 ADDITIONAL REFERENCES

Chemical Engineering. *Aboveground Storage.* August 1996.

Canadian Council of Ministers of the Environment. *Used Oil Management in Canada: Existing Practices and Alternatives.* 1989.

Canadian Council of Ministers of the Environment. *Environmental Code of Practice for Vapour Recovery in Gasoline Distribution Networks.* 1991.

Canadian Council of Ministers of the Environment. *Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.* 1994.

Environment Canada. *Manual for the Management of Underground and Aboveground Storage Tank Systems on Federal Lands.* 1997.

Chemical Engineering. *How Do Your Tanks Measure Up?* July 1996.

Interdepartmental Working Group on Environmental Management (IWGEM). *Technical Manual for the Management of Storage Tank Systems on Federal Lands.* 1997.

Transport Canada. *Airport Environmental Emergency Manual.* Chapter 4 - Fuel Spill Response for Transport Canada Operated Airports (TP9946). 1995.

7.0 OPERATIONAL WASTE

7.1 ISSUE IDENTIFICATION

Operational wastes include organic waste from food preparation, cardboard boxes used for food shipments, various plastics and aluminum cans from food products, office waste, etc. These wastes are produced in small quantities continually, with an occasional influx from food shipments.

7.2 SITE STATUS

The on-site incinerator is currently used to address most operational wastes. Approximately three garbage bags of kitchen waste are produced daily and temporarily stored in a shed next to the operations building. Two to three times a week, the heavy equipment operator takes between 10-12 bags to the incinerator for burning. The ash from the burns are collected in empty 205 L barrels and approximately 24 barrels are filled yearly. The drums of ash are filled outside of the incinerator building and moved with heavy equipment to the storage compound. There are no hazardous wastes disposed of in the incinerator.

Food supplies on hand may be enough to last up to eighteen months. Produce is delivered every three weeks, meat every two months and dry goods are shipped with the sea lift each season. Considerable volumes of packaging material accompanies the food and large cardboard boxes and wooden pallets will not fit inside of the incinerator without substantial effort to reduce their size, so they are burned at the landfill in open containers.

There is currently very little waste stream separation on site. The opportunities to recycle items are limited and in many cases, it may be too expensive to consider back-hauling empty containers. The considerable variation in station staff numbers and personnel shifts may also preclude refilling larger containers due to the potential for spoilage.

7.3 APPLICABLE STANDARDS

While waste handling, storage, and disposal is not directly regulated at federal facilities, some guidelines exist regarding preferred methods of waste handling. Table 7-1 summarizes this information.

Related topics addressed in this manual include:

Section 8 - Construction and Demolition Waste
Section 9 - Hazardous Waste

TABLE 7-1: OPERATIONAL WASTE - Selected Compliance Standards

Standard Name	Specific Standard	Applicability
Arctic Waters Pollution Prevention Act	Arctic Waters Pollution Prevention Regulations	Prohibits deposition of waste into Arctic waters.
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials, including Workplace Hazardous Materials Information System implementation and emergency preparedness.
Code of Good Practice for Solid Wastes at Federal Establishments	Waste Handling at Federal Establishments, 1977 Environment Canada	Outlines preferred solid waste management practices at federal facilities.
Code of Good Practice on Dump Closing or Conversion to Sanitary Landfill at Federal Establishments, 1977	Environment Canada	Defines appropriate dump closure/conversion practices.
Fisheries Act	Sections 34 to 36	Prohibits alteration or destruction of fish habitat and deposition of a deleterious substance in areas frequented by fish.
National Building Code of Canada	National Research Council	Criteria for buildings containing storage systems.
Canadian Environmental Protection Act	Part I and II	Pollution prevention measures.
Operations and Emission Guidelines for Municipal Solid Waste Incinerators, 1989	Canadian Council of Ministers of the Environment	Guidelines for siting, design and operation of municipal solid waste incinerators.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

7.4 PROPOSED STRATEGY: OPERATIONAL WASTE

The Operational Waste section of this Waste Management Plan addresses waste that is generated from kitchen activities including food waste and food packaging, as well as office wastes. This section addresses operational wastes handling, storage and disposal guidelines and procedures including incineration and subsequent landfill disposal.

A. General Considerations:

- Use green products (nonhazardous and biodegradeable,) whenever possible;
- Reuse containers and material where appropriate;
- Reduce consumption of products with extensive packaging

B. Incineration:

The existing incinerator provides adequate treatment for combustible operational wastes as defined in this section. Incinerated ash should continue to be collected in 205 litre empty and clean drums. Drums with ash should be stored in a secure location free from disturbance. Drums should be stored until disposal. **Note: the current incinerator is not suitable for liquid petroleum hydrocarbons as a disposal method.**

C. Disposal Procedures:

- Large packaging materials from the yearly sea-lift operation are to be treated as construction debris;
- Disposal of drums with ash should take place at least once per year;
- The selected ash-drum disposal site should:

  ✓ utilize the natural attenuation and containment features of the proposed area;
  ✓ be graded to contain runoff from waste storage and disposal;
  ✓ drain surface precipitation;
  ✓ be workable and easily accessed;

- Based on the siting and disposal requirements, the following conceptual design for a ash-drum disposal area is recommended:

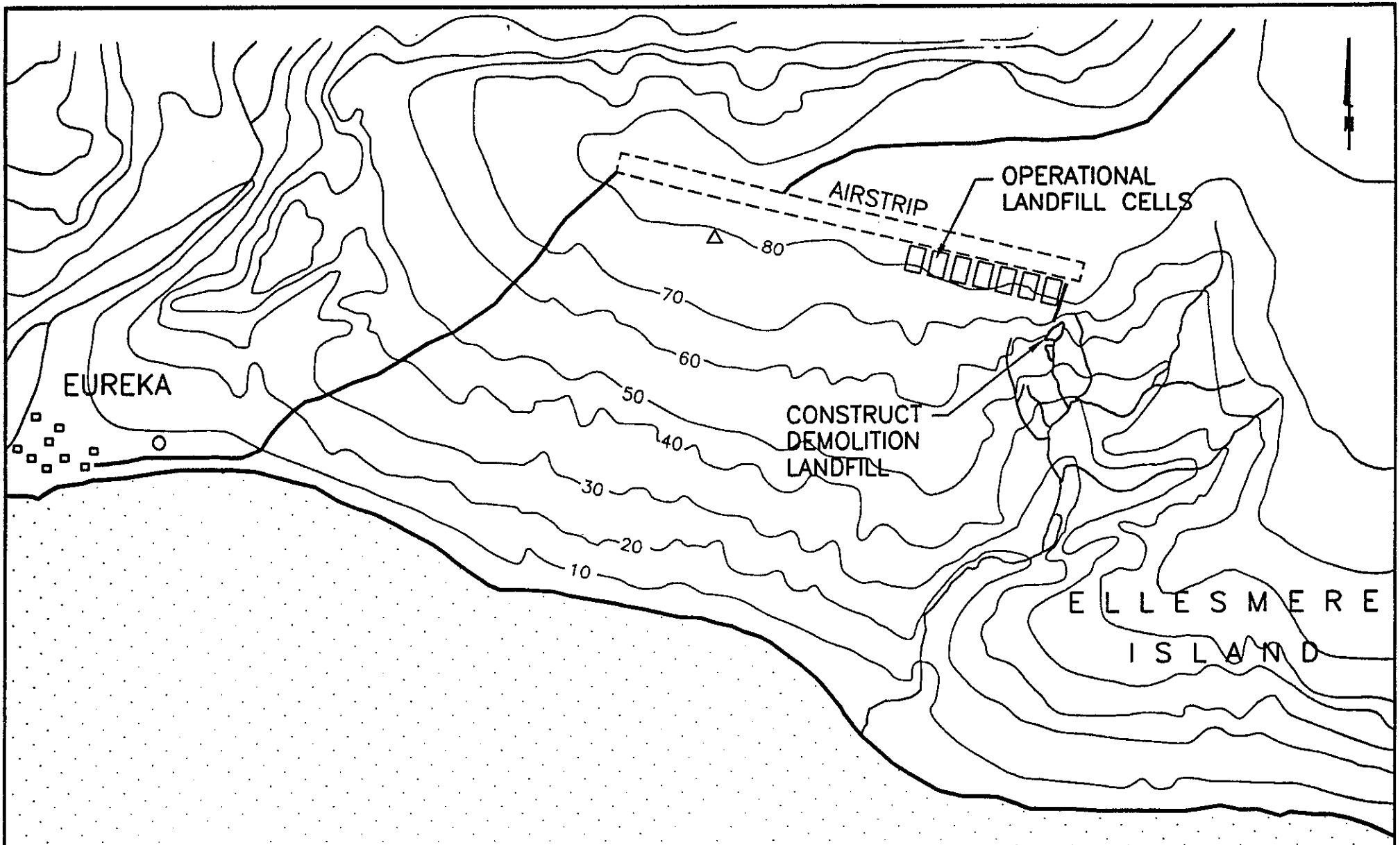
  ☐ Drums with ash are to be placed in excavated cells alongside the south-east end of the runway (see Drawing 1).
  ☐ Moving in a westward direction, cells are to be developed on a yearly basis.
  ☐ Cells will be marked and surveyed on location so that subsurface soils will not be disturbed

in the future.

- ☐ Waste will be covered with fill taken from the excavation of the trench developed from the following 2 years of cell excavations.
- ☐ Drums are to be sealed, placed on pallets, and tied in bundles of four per pallet.
- ☐ Pallets with drums are to be placed adjacent to one another. Typically, 24 drums are generated per year requiring six pallets which can be placed 3 pallets long by 2 pallets wide (see Drawing 2).
- ☐ The excavations are to be 1.1 metre deep and are to be level and free of protrusions suitable for pallet placement.
- ☐ Cells are to be capped with 1.5 metres of soil at a 3:1 slope composed of minimum 50% clays and till (see Drawing 2).

D. Staff Responsibilities:

- Station personnel are to be trained in day-to-day operational waste disposal procedures;
- Staff should ensure that landfill cells are used solely for intended purpose;
- Monitor landfill site security and ground conditions regularly.



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Public Works And Government Services Canada / Travaux publics et Services gouvernementaux Canada

Architectural & Engineering Services
Environmental Services
Alta./N.W.T. Division

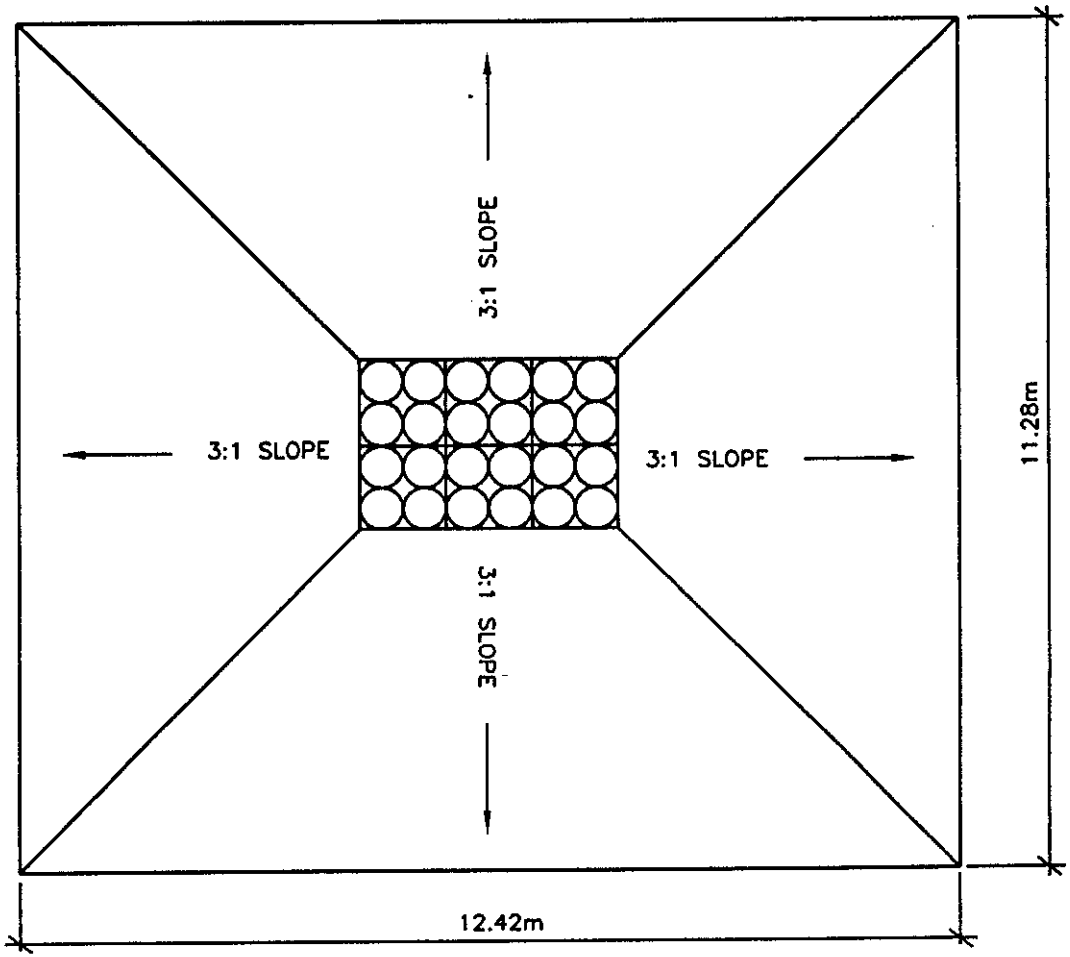
Drawing title: / Titre du dessin:

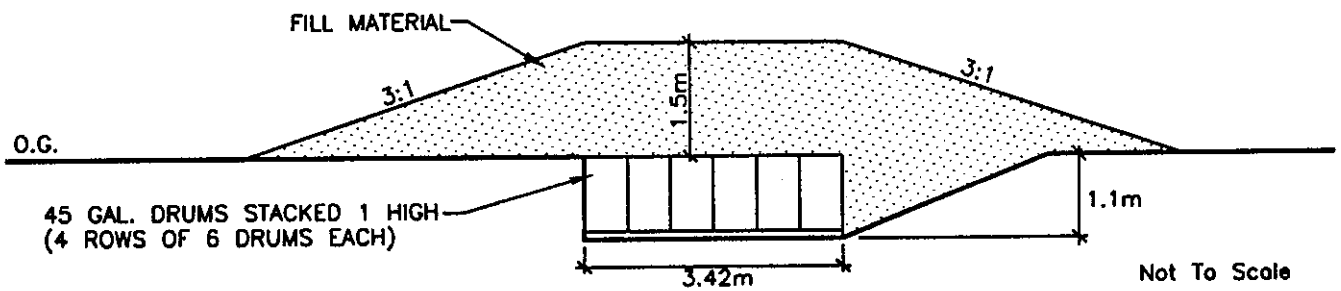
Eureka High Arctic Weather Station
Site Plan
Northwest Territories

date:

project no. / no. du projet: 658980

dwg. no. / dessin no.: DWG-1





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Public Works And Government Services Canada / Travaux publics et Services gouvernementaux Canada

Architectural & Engineering Services
Environmental Services
Alta./N.W.T. Division

Drawing title: / Titre du dessin:

Eureka High Arctic Weather Station
Non-Hazardous
Solid Waste Landfill

designed by: / conçu par: — date:

drawn by: / dessiné par:

project no. / no. du projet:	dwg. no. / dessin no.
658980	DWG-2

7.5 ADDITIONAL REFERENCES

Ontario Ministry of Environment and Energy. *Guidance Manual for Landfill Sites Receiving Municipal Waste.* 1993.

Environment Canada. *Guidance Manual for Solid Waste Landfills at Federal Facilities.* (Available in 1997).

Transport Canada. *Airport Waste Management Manual for Transport Canada Operated Airports. TP12704.* 1996.

Transport Canada Airports Group. *Airport Water Quality Manual.* 1995.

Transport Canada Airports Group. *Handbook of Environmental Policies and Recommended Practices. TP12119E.* 1995.

United States Department of Transportation. *Management of Airport Industrial Wastes.* 1991.

United States Environmental Protection Agency. *Solid Waste Disposal Facility Criteria - Technical Manual.* 1993.

Virginia Military Institute Research Laboratories, Inc. *A Pollution Prevention Manual.* 1994.

8.0 CONSTRUCTION AND DEMOLITION WASTE

8.1 ISSUE IDENTIFICATION

Construction and demolition (C&D) waste result from construction of new buildings, and demolition of or additions to old buildings. Materials are primarily bulky, including metals and wood, insulation, tires, derelict vehicles, large tanks, etc. As well, some hazardous material may be generated through these types of activities. Table 8-2 provides a list of typical wastes generated from deconstruction activities, and procedures to dispose of them. This type of waste is not produced on a regular basis in Eureka, but occasionally a large influx of this waste results from a construction or demolition activity.

8.2 SITE STATUS

The Eureka 2000 project, or revitalization of the station, will result in the demolition of at least nine buildings on the site. An environmental assessment for this project was carried out by PWGSC in 1997 and identified numerous materials that will have to be specially dealt with upon deconstruction of certain facilities.

Asbestos was found within several different types of floor and ceiling tiles in the Operations Building as well as in wallboard present in the Food Warehouse, the Operations Building, the Hydrogen Building and the Plumbing Storage Building. PCB's were found in numerous fluorescent light ballasts, within the paint in the Plumbing Storage Building and, potentially, in several transformers no longer in use.

Every painted surface tested on site contained some degree of lead, and most of a high enough concentration to warrant undisturbed disposal in the landfill without burning or sanding. Mercury was found in barometers in the weather office and vapour tubes within HID exterior flourescent lights outside of most buildings scheduled for demolition. An inventory of equipment containing ozone depleting substances was compiled, although the current plan is to reuse all refrigeration units in the new facility.

Several car bodies, equipment and other metal debris are collected in a scrapyard directly east of the new tankfarm and can be moved to the landfill for disposal without any required actions. The limited amount of unpainted wood surfaces and excess construction material can be burned in a controlled setting.

8.3 APPLICABLE STANDARDS

There is no legislation that directly applies to handling, storage and disposal of construction waste on federal facilities. Table 8-1 provides guidelines for preferred handling of these types of wastes. Other guidelines can be found in Table 7-1.

Related topics addressed in this manual include:

Section 7 - Operational Waste
Section 9 - Hazardous Waste

TABLE 8-1: CONSTRUCTION WASTE - Selected Compliance Standards

Standard Name	Specific Standard	Applicability
Arctic Waters Pollution Prevention Act	Arctic Waters Pollution Prevention Regulations	Prohibits deposition of waste into Arctic waters.
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials, including Workplace Hazardous Materials Information System implementation and emergency preparedness.
Canadian Environmental Protection Act	Parts II and IV	Defines toxic substances. Authority to regulate waste handling and disposal practices, effluent and emissions due to activities of federal organizations.
Canadian Water Quality Guidelines, 1987	Canadian Council of Ministers of the Environment	Specifies water quality parameters for various water uses.
Code of Good Practice for Solid Waste Handling at Federal Establishments, 1978	Environment Canada	Outlines preferred solid waste management practices at federal facilities.
Code of Good Practice on Dump Closing or Conversion to Sanitary Landfill at Federal Establishments, 1977	Environment Canada	Defines appropriate dump closure/conversion practices.
Fisheries Act	Sections 34 to 36	Prohibits alteration or destruction of fish habitat and deposition of a deleterious substance in areas frequented by fish.
National Building Code of Canada	National Research Council	Criteria for buildings containing storage systems.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

8.4 PROPOSED STRATEGY: CONSTRUCTION AND DEMOLITION WASTE

This section of the *Waste Management Plan* addresses reduction, reuse, recycling and disposal options for waste generated from intermittent construction and demolition activities. General considerations are provided as best-practice guidelines and are intended to serve as environmental objectives consistent with the Sustainable Development Strategy and are to be used where and when it is feasible to do so. A conceptual design is presented to direct the landfill development and disposal of non-hazardous bulky wastes in the landfill.

A. General Considerations:

- Use green products (nonhazardous and biodegradeable,) when possible;
- Use the National Master Specification for specifications on materials and practices in construction and renovation;
- Waste audits are to be included in early stages of planning construction and demolition projects;
- Time required to properly dismantle facility infrastructure for recycleable and resuseable materials should be included in project scheduling;
- Use prefabricated materials when possible;
- Reuse containers and construction material where appropriate;
- Reduce consumption of products with extensive packaging;
- Back-haul empty containers where feasible;
- Ensure contractors and subcontractors are aware of environmental policies including waste management practices; and
- Schedule an annual wrap-up meeting to review environmental performance and cost savings.

B. Landfill Disposal Procedures:

- Based on the findings of the 1995 Detailed Site Characterization (PWGSC 1995) of the landfill located southeast of the runway, contaminants have been shown not to be leaching from the site and therefore the site remains suitable for disposal of non-hazardous wastes.

- The main landfill is not suitable for common disposal due to the fact that: (a) end dumping at the toe of the slope on a weekly basis is not technically feasible due to access constraints, (b) dozing debris over the top of the slope will leave wastes spread out over the side of the slope, and (c) waste debris can not remain seasonally stored at the top of the landfill due to wind blown effects.

- The main landfill can be used for the disposal of non-hazardous C&D wastes generated from

the demolition of both the DND existing facilities and material demolished due to the Eureka 2000 renovation project.

- Combustible non-hazardous materials can be burned at the top of the landfill and, together with the non-hazardous, non-combustible waste materials, placed in cells in the natural depression. These should be filled starting from the bottom, working upwards on a yearly basis (See Drawing 3).

- Capping will consist of minimum 1.0 metres of compacted native soils scraped from the east side of the surrounding gully.

- The final grade of the south working slope is to be a maximum of 3:1 with a minimum of 1% southwards slope on the top surface.

- Asbestos waste should be double bagged and placed in a separate location within the main landfill. This location should be marked so that subsurface soils will not be disturbed in the future.

C. Staff Responsibilities:

- Station personnel responsible for waste disposal are to be trained in landfill development and operating procedures;

- Monitor and record construction waste materials and volumes that enter the landfill or leave the site;

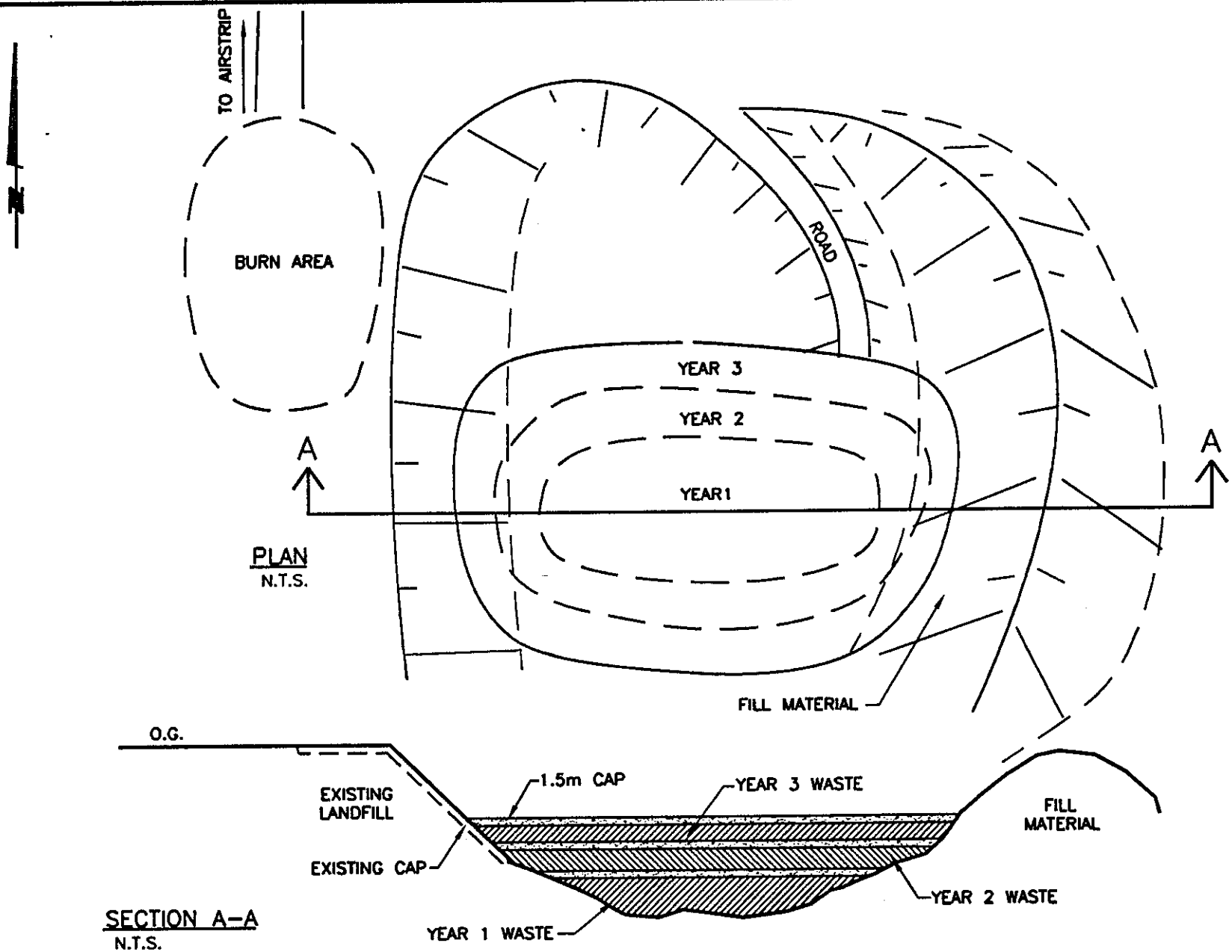
- Monitor and record volumes of asbestos waste materials that enter the landfill and document disposal locations;

- Monitor landfill site security and ground conditions regularly.

TABLE 8-2 CONSTRUCTION WASTE DISPOSAL PROCEDURES

Hazardous Material	Example Products	Procedures
Non-hazardous wood	unpainted wood	Burn in a controlled setting.
Non-hazardous metal	vehicle wrecks metal sheeting	Landfill and cover.
Asbestos-containing materials	pipe insulation plaster roofing materials floor tile and sheet coverings equipment insulation insulation paper in walls and floors acoustic tile electrical panel insulation	Double bag and dispose of in a separate section of the construction landfill. Record location for future reference.
Lead-containing materials	interior and exterior paint lead sheeting plumbing	Cannot be incinerated. Landfill in an area of minimal disturbance to surface of waste material.
Petroleum-containing equipment	pumps compressors other mechanical and electrical equipment generator supplies heating plant supplies vehicle services supplies waste oil tanks	Steam clean; collect liquid and incinerate. Crush and landfill tanks.
Mercury-containing equipment	thermostats equipment switches	Collect and ship to a hazardous waste facility.
PCB-containing materials	fluorescent lighting unit ballasts electrical transformers and capacitors other electrical equipment some interior and exterior paints	Collect and ship to a hazardous waste facility.
ODS-containing equipment	fire suppressant systems containing halons air conditioning units and systems refrigeration units and systems heat exchange systems	Retain a certified technician to recover CFC's and halons, and reuse or ship to a hazardous waste facility.
Other	tires	Landfill

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"



PLAN
N.T.S.

SECTION A–A
N.T.S.

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Public Works And Government Services Canada / Travaux publics et Services gouvernementaux Canada
Architectural & Engineering Services
Environmental Services
Alta./N.W.T. Division

Drawing title: / Titre du dessin:
Eureka High Arctic Weather Station
Construction & Demolition Landfill
Concept Design
Northwest Territories

date:

project no. / no. du projet: 658980

dwg. no. / dessin no.: DWG-3

8.5 ADDITIONAL REFERENCES

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Environment Canada - Quebec. *Guide for the Management of Hazardous Materials and Hazardous Waste at Federal Facilities in Quebic: Final Report* (DDH-93-103). 1994.

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Transport Canada Airports Group. *Handbook of Environmental Policies and Recommended Practices. TP12119E.* 1995.

United States Department of Transportation. *Management of Airport Industrial Wastes.* 1991.

United States Environmental Protection Agency. *Solid Waste Disposal Facility Criteria - Technical Manual.* 1993.

Virginia Military Institute Research Laboratories, Inc. *A Pollution Prevention Manual.* 1994.

9.0 HAZARDOUS WASTE

9.1 ISSUE IDENTIFICATION

Hazardous waste handling and disposal is a significant concern for all federal facilities. Improper waste disposal techniques may lead to site contamination. The problem of hazardous waste management in Eureka is compounded due to its isolated location. Any hazardous waste that cannot be dealt with on site must be shipped south at great expense. This chapter will discuss recommended hazardous waste handling, storage and disposal options for Eureka.

9.2 SITE STATUS

The vast majority of on-going hazardous waste generated by the Eureka HAWS involved petroleum products. Currently, up to 1000 L of waste oil is produced each year on site, and together with other miscellaneous petroleum products, are currently stored in empty 205 L barrels in a storage compound between the airstrip and main complex. This compound has also been used to store a variety of empty barrels of various fuel types, propane cylinders and approximately ten pressurized helium cylinders. Miscellaneous chemicals such as solvents and glycols are placed in empty barrels as well and kept near the maintenance garage and powerhouse until filled.

The incinerator purchased several seasons ago to handle all waste streams has turned out to not be capable of burning significant volumes of waste oil and Environment Canada has subsequently been searching for a replacement unit. Several options, including converting the unused Mould Bay incinerator or utilizing a DND unit brought in seasonally, are being considered.

A small amount of batteries are being stored after removal from vehicles and equipment. All DND batteries are now being removed every year along with batteries taken from their communication relay towers that are changed annually.

All PCB and ODS containing equipment identified during the environmental assessment for the new construction that is not being reused must be shipped from site. As indicated earlier, PCB's are present in many light ballasts in the Operations Building and other structures scheduled to be demolished while ODS were noted in all refrigeration units.

9.3 APPLICABLE STANDARDS

Both federal and territorial guidelines exist for preferred methods of disposal of hazardous wastes. These standards are summarized in Table 9-1 though this summary is not all inclusive.

Related topics addressed in this manual include:
Section 7 - Operational Waste Disposal
Section 8 - Construction and Demolition Waste

TABLE 9-1: HAZARDOUS WASTE - Selected Compliance Standards

Standard	Specific Standard	Applicability
Arctic Waters Pollution Prevention Act	Arctic Waters Pollution Prevention Regulations	Prohibits deposition of waste into Arctic waters.
Canada Labour Code	Occupational Health and Safety Regulations, Parts X, XI, XII and XVII	Health and safety requirements for regulated materials, including Workplace Hazardous Materials Information System implementation and emergency preparedness.
Canadian Environmental Protection Act	Export and Import of Hazardous Wastes Regulations	Defines restrictions associated with export and import of hazardous wastes.
Canadian Environmental Protection Act	PCB Waste Export Regulations	Prohibits export of PCB wastes, except to US EPA approved facilities.
Canadian Environmental Protection Act	Section 43	Defines hazardous waste.
Canadian Environmental Protection Act	Parts II and IV	Defines toxic substances. Authority to regulate waste handling and disposal practices, effluent and emissions due to activities of federal organizations.
Canadian Water Quality Guidelines, 1987	Canadian Council of Ministers of the Environment	Specifies water quality parameters for various water uses.
Fisheries Act	Sections 34 to 36	Prohibits alteration or destruction of fish habitat and deposition of a deleterious substance in areas frequented by fish.
Guidelines for the Management of Wastes Containing Polychlorinated Biphenyls (PCBs), 1989	Canadian Council of Ministers of the Environment	Guidelines for storage and disposal of PCB containing materials.
Hazardous Products Act	Controlled Products Regulations	Identifies products which are subjected to Workplace Hazardous Materials Information System (WHMIS) requirements, as well as supplier requirements for material safety data sheets and labels.
National Fire Code of Canada	National Research Council	Requirements for fire safety plans and spill control for hazardous material storage.

TABLE 9-1: HAZARDOUS WASTE - Selected Compliance Standards (Continued)

Standard	Specific Standard	Applicability
National Guidelines for Hazardous Waste Incineration Facilities: Design and Operating Criteria, 1992	Canadian Council of Ministers of the Environment	Minimum requirements for facilities burning industrial waste and solid hazardous waste.
National Guidelines for the Landfilling of Hazardous Wastes, 1991	Canadian Council of Ministers of the Environment	Hazardous waste landfill design and operation guidelines.
Operating and Emission Guidelines for Municipal Solid Waste Incinerators, 1989	Canadian Council of Ministers of the Environment	Guidelines for siting, design and operation of MSW incinerators.
PCB Treatment (Chemical) Guidelines, 1990	Canadian Council of Ministers of the Environment	Outlines chemical treatment alternatives for PCBs.
PCB Treatment (Incineration) Guidelines, 1990	Canadian Council of Ministers of the Environment	Outlines requirements for incineration of PCBs.
Physical/Chemical/Biological Treatment of Hazardous Waste, 1989	Canadian Council of Ministers of the Environment	Outlines treatment options for hazardous waste.
Northwest Territories Environmental Protection Act	Used Oil and Waste Fuel Management Regulations (DRAFT)	Draft requirements for used oil and waste fuel management, including storage and disposal options.
The Collection, Treatment and Disposal of Hazardous and Bulky Wastes in the Northwest Territories	The Department of Municipal & Community Affairs, GNWT	Outlines general procedures for the handling, storage and disposal of hazardous and bulky wastes
Northwest Territories Environmental Protection Act	GNWT	Guidelines for management of hazardous materials in the Northwest Territories, including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Solvents	Guideline for the management of solvents including storage and disposal options.

TABLE 9-1: HAZARDOUS WASTE - Selected Compliance Standards (Continued)

Standard	Source	Applicability
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Paint	Guideline for the management of waste paint, including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Waste Batteries	Guideline for the management of waste batteries, including storage and disposal options.
Northwest Territories Environmental Protection Act	Environmental Guideline for Ozone Depleting Substances	Guideline for the management of ozone depleting substances, including standards to be met.

Adapted from "Preventing Site Contamination at Federal Facilities: A Guidance Manual"

9.4 PROPOSED STRATEGY: HAZARDOUS WASTE - Storage, Handling & Disposal

This section focuses on general considerations, storage and handling, as well as disposal of hazardous wastes generated from station activities.

A. General Considerations

The following general principles should be incorporated into daily station operations:

- Use non-hazardous green products when possible;
- Reduce or eliminate processes that generate hazardous wastes;
- Monitor and record hazardous waste generated for disposal;
- Prevent mixing of hazardous wastes;
- Solicit and reward waste reduction suggestions;
- Ensure that an emergency spill response plan exists for hazardous wastes on site;
- Provide employees with the appropriate training for hazardous wastes handling;

B. Storage and Handling

- Identify old or unused chemicals and dispose of properly;
- Separate hazardous wastes from combustible products adequately;
- Minimize the number of hazardous wastes storage locations;
- Ensure hazardous wastes spill kits are located at every storage location;
- Maintain an inventory of stored wastes;
- Provide secondary containment for storage areas;
- Equip outdoor hazardous wastes storage areas with signs and fences.
- Hazardous wastes should be stored according to the following principals:
  - ☐ *Compatibility* - Since incompatible wastes may react and create a hazardous situation, they must not be stored together. Examples of this are:
    - ★ acids & cyanides
    - ★ flammable/combustible & oxidizers
    - ★ strong acids & strong alkalies
    - ★ acids & water
    - ★ solvents & corrosives
    - ★ flammable liquids & ignition sources
  - ☐ *Segregation* - Wastes should be segregated based on final disposal options.
  - ☐ *Ventilation* - Highly volatile organic hazards can present serious health risk. Waste should be stored outside in sheds which provide free air movement.
  - ☐ *Climate/Environment* - Consideration must be given to freezing temperatures and

precipitation when storing wastes. For example, wastes with a high water content can freeze, expand, and damage storage containers. If stored outside, containers should be covered by a roof or tarpaulin, and preferably placed on an impermeable base. This prevents contact of precipitation and soil, keeps off the direct sunlight, and makes clean-up of spills or leaks easier and cheaper.

- Hazardous wastes should be handled according to WHMIS guidelines.
- Transportation of hazardous wastes must be in accordance with Transportation of Dangerous Goods Act (TDG).
- All staff handling hazardous wastes must receive training in WHMIS and TDG

C. Hazardous Waste Disposal Procedures

Table 9-2 lists procedures for disposing of hazardous waste that is generated at Eureka.

TABLE 9-2: HAZARDOUS WASTE PROCEDURES

Material	Example Products	Procedures
Petroleum Products	waste product from generator, vehicle services, or heating plant supplies waste product from pumps, compressors, waste oil tanks or other equipment	Incinerate*
Batteries	vehicle batteries	Collect and ship to a hazardous waste facility for recycling.
Solvents	cleaners, degreasers	Collect and ship to a hazardous waste facility.
Glycol	antifreeze, coolants	Incinerate*
PCB Containing Material	transformer oil, light ballast	Ship to a hazardous waste facility.
CFC Containing Material	refrigerants	Retain a certified technician to recover CFCs and halons; reuse or destroy.
Other chemicals	maintenance chemicals photography chemicals process chemicals	Collect and ship to a hazardous waste facility.

* Section D describes incineration options.

D. Hazardous Waste Incinerator Options - Table 9-3

Option	Capital Cost	Pros	Cons
Status Quo - incinerate oil as waste	$0	• Low cost	• Extremely slow (>1 L per hour or 200 hrs per barrel of waste oil); • Labour intensive: requires constant attention to avoid overheating
Waste Oil Heater	< $10,000 including shipping	• Supplies aux. heat for warehouse/maintenance garage • burns all hydrocarbons • EPA approved for air emissions • no odours and clean burning • easy installation & operation • inexpensive	• unproven in the Arctic environment
New waste oil incinerator unit	$30,000 + shipping from Edmonton	• New unit designed for waste oil incineration; • Minimal cost increase over retrofit; • Good burn rate (approx. 100 L per hour) • Can be transported in a twin otter airplane and has been used on DEW Line sites; • Excellent reliability record; • Requires minimal supervision during operation.	• Increased capital cost; • Unit can only burn waste oil and at a slower rate than high volume incinerator
New high volume waste oil incinerator	$50,000 + shipping from Edmonton.	• Quickest incineration rate; • Will require least manpower costs due to speed.	• Most expensive option; • Only incinerate waste oil; • Too high capacity
Back-hauling on Barge in Over-pack Barrels	Yearly operating cost (negotiable.)	• Waste removed • No burner maintenance • No capital cost	• Potentially high operating cost • Potential liability during transport • Environ. stewardship
Bi-yearly Incineration by Contractors (flaring with diesel mix)	$20-40,000 per two years	• Waste treated on-site • Minimal EC on-site staff involvement • Treated in short time frame • No capital cost	• High operating cost • Requires use of on-site fuel as mix • Storage of waste up to 2 years

Based on an evaluation of the options presented in Table 9-3, it is recommended that incineration of hydrocarbon products not contaminated with PCBs, heavy metals, and halogens using the waste oil heater. This system will provide the most benefit with the least cost and risk.

9.5 ADDITIONAL REFERENCES

Ontario Ministry of Environment and Energy. *Guidance Manual for Landfill Sites Receiving Municipal Waste.* 1993.

Environment Canada - Quebec. *Guide for the Management of Hazardous Materials and Hazardous Waste at Federal Facilities in Quebec: Final Report* (DDH-93-103). 1994.

Environment Canada. *Guidance Manual for Solid Waste Landfills at Federal Facilities.* (Available in 1997).

Transport Canada. *Airport Waste Management Manual for Transport Canada Operated Airports. TP12704.* 1996.

Transport Canada Airports Group. *Airport Water Quality Manual.* 1995.

Transport Canada Airports Group. *Handbook of Environmental Policies and Recommended Practices. TP12119E.* 1995.

United States Department of Transportation. *Management of Airport Industrial Wastes.* 1991.

United States Environmental Protection Agency. *Solid Waste Disposal Facility Criteria - Technical Manual.* 1993.

United States Environmental Protection Agency. *Requirements for Hazardous Waste Landfill Design, Construction, and Closure, Seminar Publication.* 1989.

Virginia Military Institute Research Laboratories, Inc. *A Pollution Prevention Manual.* 1994.

10.0 CLOSURE

The Waste Management Plan for the Eureka High Arctic Weather Station defines the best procedures for dealing with waste streams encountered at the site and also serves to demonstrate the commitment of Atmospheric Environmental Services, Environment Canada to meet or exceed their environmental responsibilities.

The suggested practices outlined in this document are intended to serve all occupants of the Eureka site and can be adapted to suit changing operations. It should be considered a "dynamic" plan that can incorporate modifications due to alterations to facilities or programs, and from lessons learned from staff experiences. This will ensure continued and diligent responses to site-generated wastes, and serve as a key component of the Environmental Management System for the department.

EMERGENCY PLAN

FOR PETROLEUM AND ALLIED PETROLEUM PRODUCTS

– Eureka High Arctic Weather Station –

Prepared by: Technical Services, Property Management Division
Assets, Real Property and Security Directorate
Corporate Services Branch
Environment and Climate Change Canada

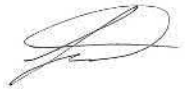
April 2021

CONTROL PAGE

On receipt of revisions and/or amendments, Technical Services shall complete this control page to ensure that the Emergency Plan for Storage Tank Systems of Petroleum and Allied Petroleum Products at Eureka High Arctic Weather Station (HAWS) is always current and consistently reflects the operations and activities taking place on site.

Version	Description / Purpose	Date in Force	Revision Date	Revised By:	Approved By:
1	Original Plan	April 1, 2010			Natalie Boulanger
2	Original Plan updated : 1-as per ECCC, Environmental Enforcement Branch, Iqaluit 2-as per changes in the applicable regulatory regimes & identification of inadequacies		September 2012	Marie-Michelle Modéry & Carl Carroll	Rebekah Olson
3	Addition of ECCC Movement Document Manifest		April 2013	Carl Carroll	Rebekah Olson
4	Modifications to Spill Response contact numbers and notification procedures		June 2014	Carl Carroll	Rebekah Olson
5	Modifications to Spill Response contact numbers, notification procedures and NWB License number		March 2015	Jean-Philippe Cloutier-Dussault	Rebekah Olson
6	General Update and modifications to spill response contact numbers.		July 2016	Jean-Philippe Cloutier-Dussault	Rebekah Olson
7	General Update and modifications to spill response contact numbers.		June 2017	Jean-Philippe Cloutier-Dussault	Rebekah Olson
8	Added Appendix T and General Update		May 2018	Jean-Philippe Cloutier- D.	Rebekah Olson
9	Corrected contact phone numbers and added fuel tanks information		June 2019	Jean-Philippe Cloutier-D.	Adam Kurz
10	Complete review and update		April 2021	Jean-Philippe Cloutier-D. and Simon Germain	Ryan Breivik

APPROVAL



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Ryan Breivik A/Manager ECCC Real Property Services	Signature	Date (Month/Day/Year)

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

ACRONYMS

ARPSD	Assets, Real Property and Security Directorate
BMP	Best management practices
C	Celsius
CCG	Canadian Coast Guard
CEPA	Canadian Environmental Protection Act
CPR	Cardiopulmonary Resuscitation
CSA	Canadian Standards Association
DSD	Nunavut Department of Sustainable Development
ECCC	Environment and Climate Change Canada
FIRSTS	Federal Identification Registry for Storage Tank Systems
FSTS	Fuel Storage Tank System
HAWS	High Arctic Weather Station
INAC	Indigenous and Northern Affairs Canada
L	Liters
Licence	Nunavut Water Board Licence No. 8BC-EUR1621
M	Meters
MSDS	Material Safety Data Sheets
NFCC	National Fire Code of Canada
NWB	Nunavut Water Board
OSC	On-Scene Commander
PEARL	Polar Environmental Atmospheric Research Lab
PPE	Personal Protective Equipment
PSI	Pounds per square inch
SPM	Station Program Manager
SOP	Standard Operation Procedure
WHMIS	Workplace Hazardous Materials Information System

1. INTRODUCTION

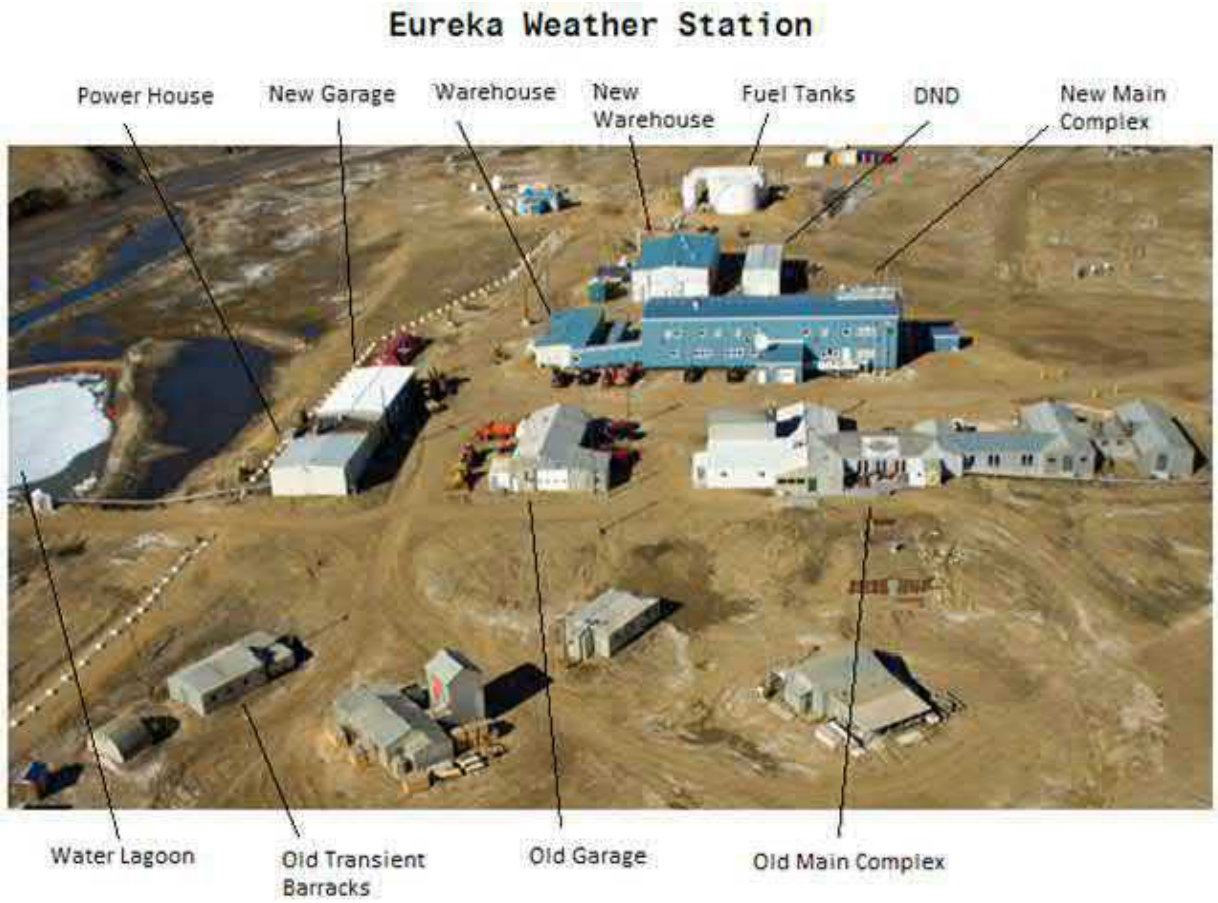


Figure 1: Eureka High Arctic Weather Station, Eureka, NU

1.1 Context

Spills of petroleum and allied petroleum products cannot be entirely prevented; however, the impacts of spills can be minimized by training and establishing a predetermined line of response and action plan. The remoteness of Eureka High Arctic Weather Station (HAWS) coupled with the environmental sensitivity of the region underline the necessity for good spill contingency planning.

This Eureka Environmental Emergency Response Plan (EERP) for petroleum and allied petroleum products applies to the Eureka High Arctic Weather Station (HAWS) located in Eureka, Nunavut. The HAWS is located on the north side of Slidre Fjord, at the north-western tip of Fosheim Peninsula on Ellesmere Island. HAWS is owned and

operated by the Meteorological Service of Canada. Although remote, the Eureka HAWS is a hub of activity for Environment and Climate Change Canada, the Department of National Defence, the Polar Continental Shelf Program, and the Polar Environment Atmospheric Research Lab (PEARL).

The site is accessed primarily by air with an all season air strip located about 1.5 km northeast of the site. An annual sea lift is conducted to provide Eureka HAWS with petroleum products to generate electricity, heat and operate motorized vehicles, pumps, snowmobiles, etc. Many stakeholders occupy the Station during the short summer season and the population can range from an average of 20-30 people up to as many as 40-60 people at any given time. During the winter months, which last around 10 months of the 12, there are approximately 8-10 people on site, primarily consisting of MSC staff and researchers.

1.2 Purpose and Objectives of the Plan

The aim of this Environmental Emergency Response Plan (EERP) is to provide clear, timely, safe and effective coordinated response procedures by Environment and Climate Change Canada personnel in relation to environmental emergencies at Eureka and compliance with relevant regulations, in order to protect the environment and human health in the event of accidental release of petroleum products. The EERP provides ECCC and related personnel, who are involved in incident responses, with the necessary information to manage fuel storage tank systems (FSTS) through the adoption of preventative measures, plans for preparedness, as well as response and recovery procedures in the event of accidental release.

The principle objectives of the Plan are to:

1) Comply with all relevant federal government regulations, including the following;
   -Nunavut Water Board license 8BC-EUR1621 pursuant to the *Nunavut Waters and Subsurface Tribunal Act*
   -*Storage tank systems for petroleum and allied petroleum products regulations* pursuant to *the Canadian Environmental Protection Act*, 1999;
2) Protect Environment and Climate Change Canada (ECCC) employees, other persons working at or visiting Eureka HAWS and the environment by meeting or surpassing all applicable environmental and health and safety legislation, licenses, policies, codes of practice and plans (See Appendix A for the major requirements of the preceding);
3) Provide detailed information and guidance on actions important for the prevention of spills and procedures to detect and respond to them when they occur;
4) Identify potential emergency situations;
5) Minimize the impact of emergencies; and finally
6) Continually improve response procedures.

2. ADMINISTRATION

2.1 Effective Date of Emergency Plan

April 1, 2010

2.2 Plan Distribution List

This Plan and all subsequent updates shall be issued to (see Appendix B):

1) Environment and Climate Change Canada – Station Program Manager Nunavut;
2) Environment and Climate Change Canada – Head Aerological & Surface Operational Programs-Winnipeg, Manitoba;
3) Environment and Climate Change Canada – Manager, District 1 Property Management, Ottawa, Ontario;
4) Environment and Climate Change Canada – Environmental Compliance Officer, Gatineau, Quebec;
5) Department of Environment, Government of Nunavut; and
6) Nunavut Water Board, Gjoa Haven, Nunavut.

2.3 Plan Review and Maintenance

Manager, District 1 Property Management is responsible for the maintenance and update of the Plan.

The Plan shall be reviewed and updated:

1) **Annually**, taking into account changes in the applicable regulatory regimes, environmental factors and any petroleum and allied petroleum-related infrastructural changes at Eureka HAWS; and/or
2) **Following** a spill greater than 100 L; and/or
3) **Following** a spill of any amount that reaches water (Fisheries Act); and/or
4) The identification of any inadequacies in the Plan or in its implementation.

Changes in phone numbers and names of individuals etc. that do not affect the intent of the Plan are to be made on an annual basis. Plan updates shall be made in accordance with the above requirements. With each modification to the Plan, the Control Page shall be update and re-issued as per the Distribution List.

2.4 Response to Media and Public Inquiries

Media inquiries of Eureka or other ECCC staff concerning petroleum spills at Eureka should be directed to Environment and Climate Change Canada - Media Relations (see

Appendix B). The Prairie and Northern Region's Communications Unit will coordinate a response to the inquiries.

3. EUREKA PETROLEUM AND ALLIED PETROLEUM PRODUCTS INVENTORY

This section provides a description of the:

1) Types of petroleum and allied petroleum products and their systems at Eureka;
2) Hazards associated with petroleum products;
3) Location and maximum expected quantities of the petroleum products or allied petroleum products stored at Eureka at any time during any calendar year; and
4) Characteristics of Eureka and the surrounding area that may increase the risk of harm to the environment or of danger to human life or health.

3.1 Types of Petroleum and Allied Petroleum Products at Eureka

1) Diesel fuel which is used to generate electricity and heat as well as fuel diesel motorized equipment;
2) Gasoline to fuel automobiles, pumps and snowmobiles;
3) Hydraulic fluids, greases, etc. for equipment and vehicles;
4) Aviation Fuel for aircraft;
5) Diesel engine oil for equipment and vehicles;
6) Hydraulic fluids for equipment and vehicles;
7) Glycol for equipment and vehicles; and
8) Petroleum and allied petroleum wastes.

3.1.1 Description of Eureka's Petroleum and Allied Petroleum Product Systems

3.1.1(a) Diesel System

Diesel fuel is shipped to Eureka HAWS by a Canadian Coast Guard (CCG) ice breaker. The ice breaker anchors approximately 100 to 300 metres off-shore, and using a floating hose, connects to a land based pipe system to pump the oil to the tank farm (See Appendix E for details).

3.1.1(b) Gasoline System

Gasoline is brought on shore in 205 L drums. Approximately ten drums are required to fill the 2,273L gasoline tank that is located just south of the tank farm. The average yearly consumption of gasoline is approximately 3,000 L (See Appendix F for details).

3.1.1(c) Other Petroleum and Allied Products Systems

Much of the barrel petroleum and allied petroleum products that arrive each year on the ice breaker are for agencies/customers other than ECCC. Further, other than for a few days following the departure of the ice breaker, most of the barrel products are stored at the north apron of the runway near the DND facility. These products include diesel engine oil, solvents, and hydraulic fluids. In addition, there could be up to 4000 barrels of aviation fuel from other agencies/customer.

Finally, ECCC and other agencies/customers site operations result in Eureka accumulating up to 80 barrels of waste oil and waste aviation fuel which are stored at ECCC's Petroleum and Allied Petroleum Barrel Storage Area.

3.2 Hazards of Petroleum Products

Material Safety Development Sheets (MSDS) are provided in Appendix C and Appendix D for diesel and gasoline respectively. These outline in detail the properties of the diesel and gasoline fuel on site at Eureka for the year 2021.

3.3 Diesel and Gasoline Tank Systems at Eureka, HAWS

Table 1 documents the characteristics of Eureka's HAWS diesel and gasoline tank systems.

Table 1: Volumes and locations of tanks containing petroleum materials

ECCC Registration Number	Fuel	Tank Storage Volume	Number of Tanks	Containment Type	Maximum Tank Capacity*	Storage Location and Uses
EC-00001218	Diesel Fuel	770,000 L	1	Single-Walled Tank with impermeable liner and berm (110%)	693,000 L	Tank Farm
EC-00001218	Diesel Fuel	60,000 L	9	Single-Walled Tanks with impermeable liner and berm	54,000 L x 9	Tank Farm
EC-00001218	Diesel Fuel	567 L	2	Single-Walled	Day tank	Generate power; part of Tank farm system
EC-00001195	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Transmitter Building, Heating
EC-00001212	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Old Maintenance Garage, Heating
EC-00001146	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Warehouse, Heating
EC-00001124	Diesel Fuel	9,000 L	1	Double-Walled Tank	8,100 L	Incinerator, Burning
N/A (Regulated by Transport Dangerous Goods Act)	Diesel Fuel	1, 850 L	1	Double-Walled Mobile Tank AGB Product Inc.	1, 665 L	Employed to transfer diesel to Transmitter Building, Old Maintenance Garage, Warehouse & Incinerator
EC-00001251	Gasoline	2,273 L	1	Double-Walled Tank	2,045 L	South and adjacent to Tank Farm, vehicle fuel, snowmobiles, small generators
N/A Day Tank	Diesel Fuel	1,150 L	1	Single-Walled Tank	1,035 L	Inside PEARL generator room
EC-000455567	Diesel Fuel	13,527 L and 1,114L	2	Single-Walled Tanks	12,174 L and 1,002 L	Outside and Inside the multipurpose building
EC-000455567	Diesel Fuel	8,100 L	1	Double-walled tank	9,000 L	New Storage Building

*Tanks are only filled to 90% of their capacity to accommodate any possible volume expansion due to a rise in temperature.

3.3 Location of Petroleum and Allied Petroleum Products and Systems at Eureka

The location of Eureka's petroleum and allied petroleum products are identified in Figure 2.

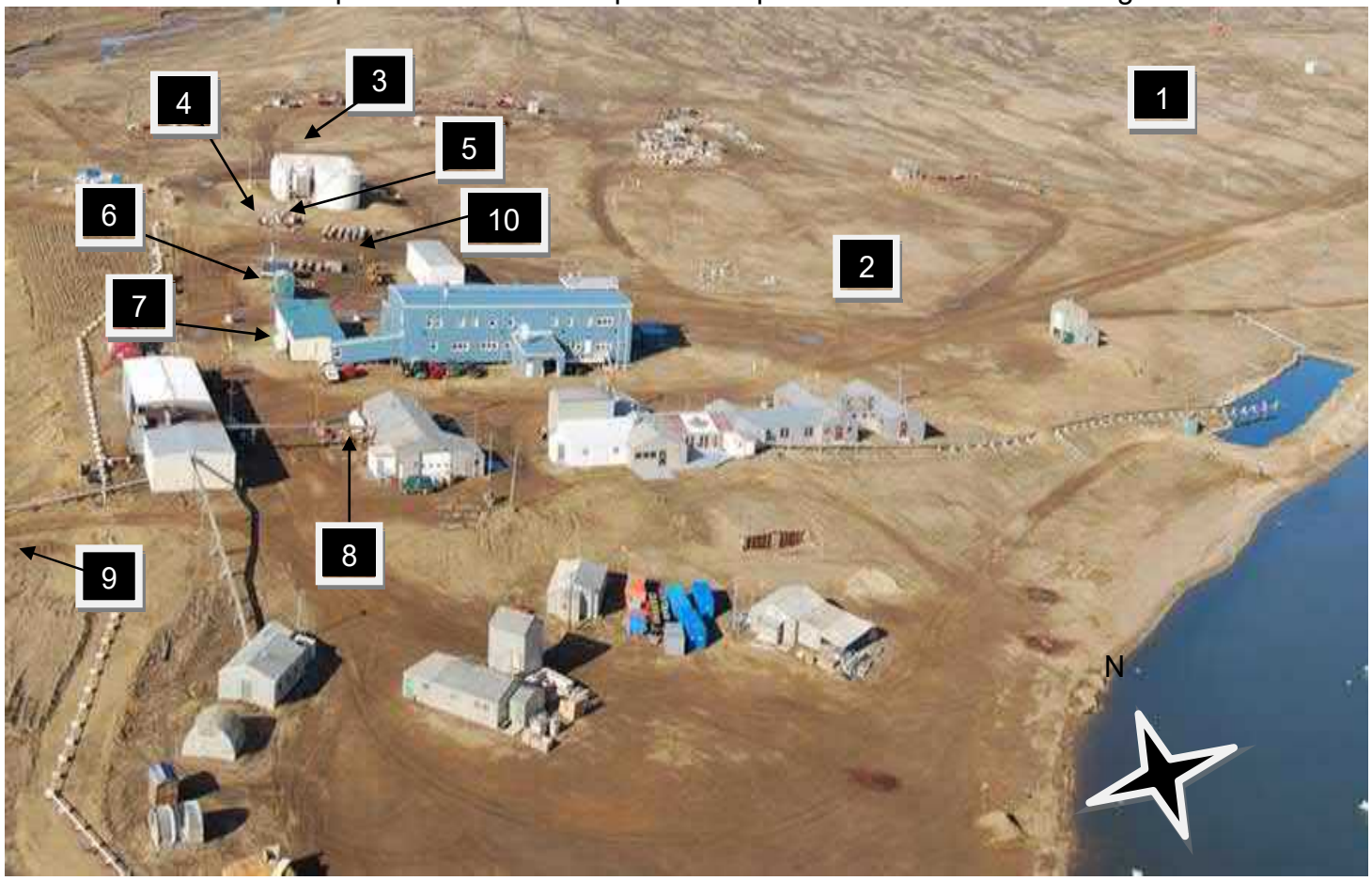


Figure 2: Location of Eureka's Petroleum and Allied Petroleum Products

Legend

1: *Transmitter Tank EC-00001195*
2: *ECCC's petroleum and Allied Barrel Storage Area*
3: *Tank Farm EC-00001218*
4: *Diesel Dispenser Mobile*
5: *Gasoline Tank EC-00001251*
6: *Incinerator Tank EC-00001214*
7: *Warehouse Tank EC-00001146*
8: Maintenance Tank EC-00001212
9: PEARL Day tank
10: Multipurpose Building Ext. and interior tanks 000455567

3.4. EUREKA SITE CONDITIONS

This section of the EERP describes types of biotic, abiotic, and human receptors present in Eureka which are relevant during any environmental emergencies.

3.4.1 Receptors

There are a number of receptors at Eureka that could be adversely affected by a spill of petroleum or allied petroleum products. Figure 3 illustrates the location of the principle environmental, human and economic receptors at Eureka.

Legend

1: *Sewage Lagoon*
2: *Slidre Fjord*
3: *CCG Ice breaker location*
4: *Buildings*
5: *Freshwater lagoon*
6: *Station Creek delta*
7: *Station Creek*
**Note: Prevailing winds travel W in Aug and NE in Sept.*

Figure 3: Location of environmental, human and economic receptors at Eureka

3.4.2 Climatic Conditions

The prevailing climatic conditions in Eureka are:

1) Wind – the prevailing wind is from the west during late summer and east for the remainder of the year;
2) Temperatures – well below freezing for the majority of the year (September to July);
3) Snow cover – snow is present for 9-10 months of the year; and
4) Ice – ice conditions are such that only an icebreaker can perform the annual re-supply. Resupply is usually conducted in August or September.

3.4.3 Topography

The topography at Eureka determines the direction and speed of spilled petroleum and allied petroleum products. Figure 4 illustrates a shallow north to south slope (10 M in 450 M or approximately 2%) in the land from the base of the tank farm to the Fjord and a steep slope of the land just to the west of the pipeline.

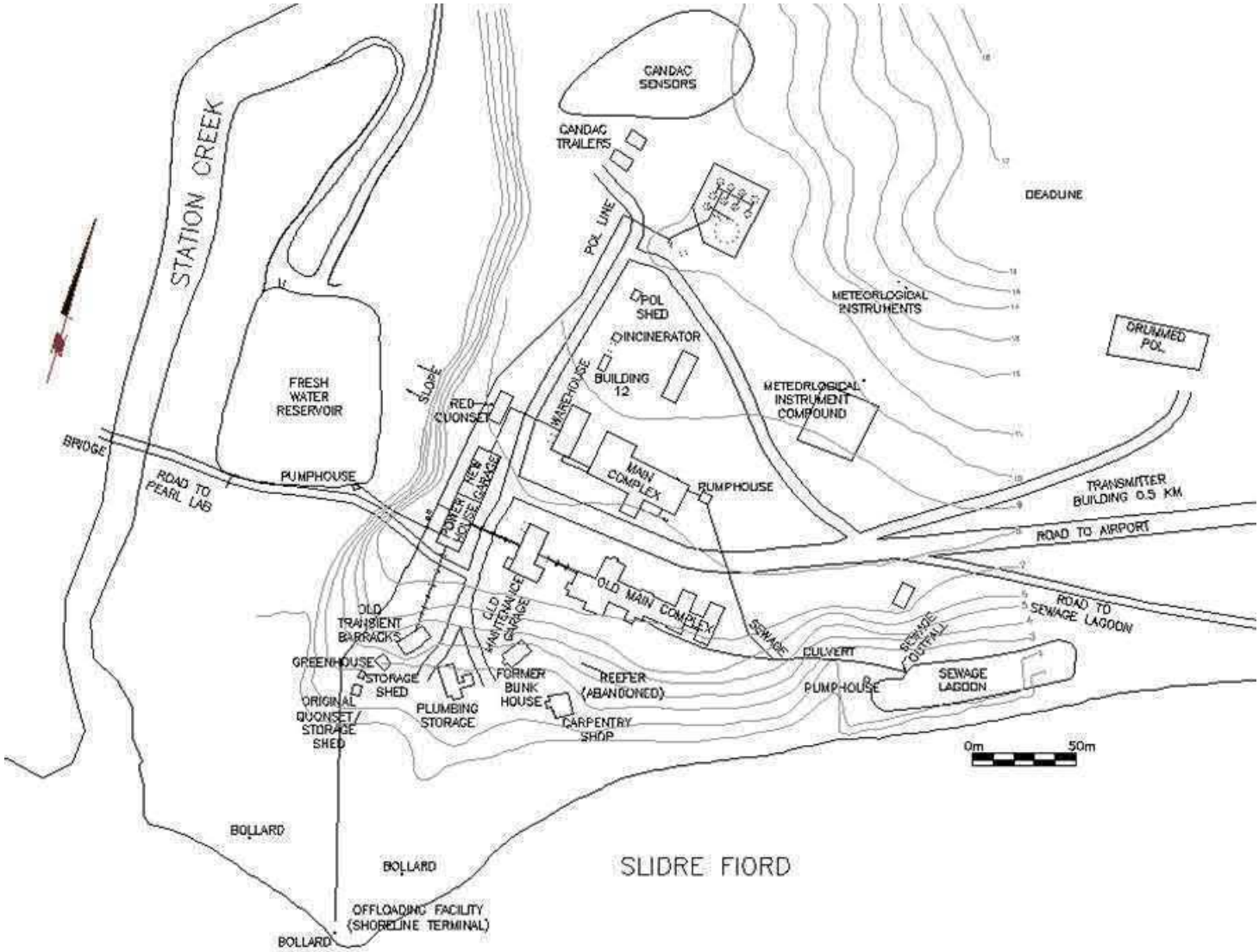
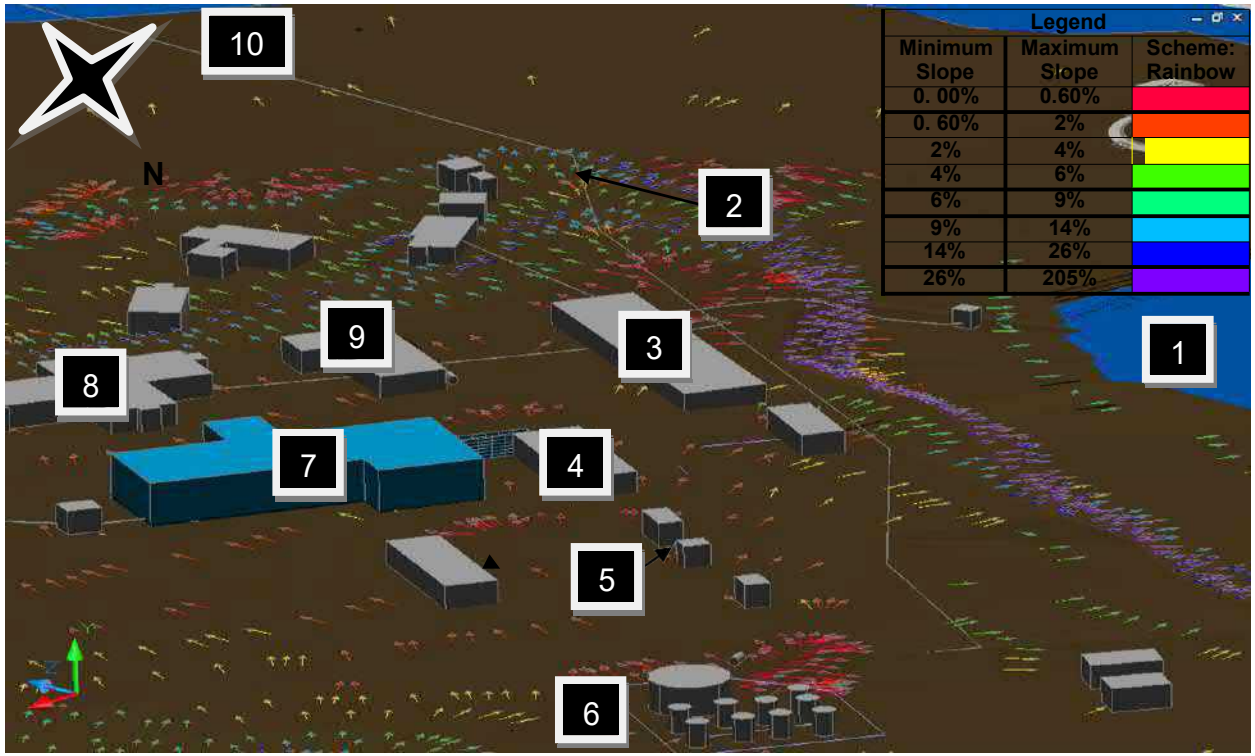


Figure 4: Topographical Map of Eureka

Figure 5 illustrates the Eureka's HAWS topography and direction of flow of possible discharges at Eureka HAWS.



Legend

1: *Freshwater Lagoon*
2: *Pipeline*
3: *Powerhouse*
4: *Warehouse*
5: *Incinerator*
6: *Tank Farm*
7: *Main Complex*
***8**: Old Main Complex*
***9**: Old Maintenance Garage*
***10**: Slidre Fjord*

Figure 5: Topography and flow transport model at Eureka

4. POTENTIAL SPILL SCENARIOS AND ENVIRONMENTAL IMPACTS

4.1 Likelihood of Spills at Eureka

Environment and Climate Change Canada's *Summary of Spill Events in Canada, 1984-1995* provides a review of all spill trends in Canada for the period indicated.

The report has a number of key findings:

1) The top five reasons for spills are equipment failure, human error, corrosion, material failure and storm or flood.
2) The environmental medium most frequently affected by spills is land.
3) The main consequences of spills would be vegetation, ocean and property damage.
4) Fifty-eight percent of the total number of reported spills involved petroleum products.

According to Environment and Climate Change Canada's *Summary of Spill Events in Canada, 1984-1995,* the likely causes ("what" went wrong) of federal spills are pipe leaks (19% of spills), above-ground tank leaks (15%), container leaks (12%) and overflows (8%). The report recommends material storage as an area in which to focus prevention efforts.
The likely reasons ("why" it went wrong) for spills in the government (all governments) sector are: storm (25%), equipment failure (22%), and human error (10%).

4.2 Overview of Non-Marine Spill Scenarios

Table 2 presents the principle petroleum products stored on site. For each, the table lists potential discharge events with associated discharge volumes and directions. The most likely discharge volume is indicated and the spill clean-up procedures will focus on spills of this quantity. A worst case scenario is also presented. Specific discharge rates are not indicated for each fuel type as these would vary from a few minutes to several hours, based on the source of leak or puncture.

Table 2: List of petroleum materials, potential discharge events, potential discharge volumes and direction of potential discharge

Material (sources)	Potential Discharge Event	Discharge Volume	Possible directions of discharge and susceptible receptors
Diesel	Over filling of portable tank or diesel vehicles from diesel dispenser Leaking pipeline (outside tank farm) to diesel dispenser and motorized valve inside tank farm stuck open	• Likely < 100L • Worst Case ~ 50,000L **(dispenser connected to 60,000L tank)**	Appendix G
	Over filling of 9,000L tanks from portable tank	• Likely: < 100 L • Worst Case: ~ 2000 L **(portable tank contains ~ 15 000 L)**	Appendix J, (Maintenance Tank) Appendix K (Warehouse Tank) Appendix L (Incinerator Tank)
	Leaking from any of the 10 tanks in Tank Farm	• Likely: < 100L • Possible: > 100 L to < 50,00L • Worst Case: ~ 700,000L **(largest single tank is ~ 700,000 L)**	Appendix G (Tank Farm)
	Leaking from pipeline during sea lift	• Likely: < 100L • Worst Case: ~ 25,000L **{volume of pipe (~ 270 M) between check valve at power house and tank farm}**	Appendix H (North End Pipeline) Appendix I (South End Pipeline)
	Leaking pipeline (outside tank farm) to power house and motorized valve inside tank farm stuck open	• Likely: < 100L • Worst Case: ~ 50,000L **(power house connected to 60,000L tank)**	Appendix H (North End Pipeline)
Gasoline	Over filling of gasoline tank or vehicles south of Tank Farm	• Likely: < 100L • Worst Case: ~ 200L **(volume of gasoline barrel)**	Appendix G (Tank Farm)
Jet A Fuel, Gasoline, Hydraulic Fluid, Glycol, Waste Petroleum	Piercing of 205L barrel	• Likely: < 100L • Worst Case: ~ 200L **(volume of barrel)**	Appendix M (Barrel Storage Area)
	Dropping of pallet of 205L barrels following sea-lift	• Likely < 100L • Worst Case ~ 800L **(pallet of 4 barrels dropped during transport)**	Appendix I (South End Pipeline)

4.3 Potential Impacts of Petroleum and Allied Petroleum Spills

Petroleum and allied petroleum products may be harmful to wildlife and aquatic life. They are not readily biodegradable and have the potential for bioaccumulation in the environment. Diesel burns slowly and thus the risk to the environment is reduced during recovery as burn can be more readily contained compared to a volatile fuel like gasoline.

Overall, for all hazardous materials discussed above, impacts are lower during winter. Snow is a natural sorbent and ice can form a barrier limiting or eliminating soil or water contamination; thus spills can be more readily recovered when identified and reported.

5. SPILL PREVENTION AND BEST MANAGEMENT PRACTICES

Planning for an emergency situation is imperative because of the hazardous nature of the petroleum and allied petroleum materials and the circumstances detailed in sub-sections 3.2.

These realities magnify the importance of focusing on preventative measures to minimize the likelihood of a spill and thereby provide for the safety of Eureka's personnel and the local environment.

5.1 Current Preventative measures

5.1.1 Tank Farm (EC-00001218) Fuel Re-supply Standard Operating Procedures (SOPs)

Due to the quantity of diesel fuel delivered and its transfer across open water to the shore piping system, the annual bulk transfer by ship offloading poses the greatest risk to the environment at Eureka. The following procedures are currently in place to mitigate the risks of a spill during re-supply:

1) Preliminary inspections of infrastructure before oil transfer operations commence:

    a) Coast Guard confirms that the transfer hose from ship to shore-line has been certified and a pressure test has been conducted on it.
    b) Coast Guard verifies the integrity of the ships mooring lines.
    c) ECCC personnel & Coast Guard inspect the pipeline & valves from the shore to the tank farm and review procedures to be implemented for possible spill scenarios.

2) Restrictions on fuel transfer from ship to diesel tank system:

    a) *If no ice in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

        i) Wind speed greater than 15 knots; and
        ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG.

    b) *If light to medium new year ice conditions in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

        i) Wind speed greater than 10 knots;

ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG; and
iii) Should ice flows pose a risk for damage to the floating transfer hose, and such ice flows cannot be easily diverted away from the transfer hose by CCG zodiacs or landing craft, contact will be made immediately to the CCG icebreaker to shut down the transfer of fuel. Upon draining the transfer hose of all fuel, the hose will be disconnected from the ship and will not be reconnected until ice flows do not pose any immediate problems

c) *If heavy New Year ice conditions in Slidre Fjord.* No transfer of fuel is permitted under the following environmental conditions:

i) Wind speed greater than 10 knots;
ii) Other unacceptable conditions which increase the likelihood of a spill or impede the ability of the oil handling facility to respond in the event of an incident in the judgment of the CCG; and
iii) Should ice flows pose a risk for damage to the floating transfer hose, and such ice flows cannot be easily diverted away from the transfer hose by CCG zodiacs or landing craft, contact will be made immediately to the CCG icebreaker to shut down the transfer of fuel. Upon draining the transfer hose of all fuel, the hose will be disconnected from the ship and will not be reconnected until ice flows do not pose any immediate problems.

3) Safety measures implemented on-land during diesel fuel transfer

The fuel is delivered to the tank at a pressure of approximately 30 - 80 psi which is well below the pressure capabilities of the hose and pipeline systems.

4) Single diesel tank filling procedure

The annual re-supply is only pumped into the 770,000L storage tank (any residual oil contained within the 770,000 L tank having been conveyed to the other 60,000 L tanks prior to re-supply). This procedure significantly lowers the potential for tank overfills, in that only one tank must be monitored during loading and eliminates a problematic procedure of continually switching from tank to tank during the re-supply process.

5) Monitoring procedures during re-supply

The following individuals are in constant radio contact throughout the approximately 14-24 hour transfer which takes place in August or September:

a) The Captain of the Coast Guard ship;

b) The Captain's Coast Guard counterpart (the Beachmaster) on the beach where the hose from the ship meets the fixed pipeline on land;
c) An ECCC contract personnel and/or the Beachmaster patrolling the pipeline; and
d) An ECCC contract personnel and/or the Beachmaster at the 770,000 L tank or any of the 9 - 60,000 L tanks observing the mechanical float level and comparing that observation with a physical measuring of the level of the fuel in the tank by manual dipping. The 770,000 L tank or any of the 9 - 60,000 L tanks are closely monitored during the filling process to ensure there is a minimum of 10% of its capacity remaining to accommodate any possible volume expansion due to a rise in temperature.

5.1.2 Secondary Containment Measures

Secondary containment is provided for all tanks, either in the form of double-walled tanks, or in the case of the tank farm, a berm with high density polyethylene synthetic impermeable liner providing 110% of the capacity of the 770,000 L tank.

An analysis report on fuel storage and product transfer areas for Eureka was conducted in 2009 by a consultant in order to identify measures required in order to comply with Fuels Storage Tank System (FSTS) regulations along with providing suggestions on applicable best management practices. Eureka has implemented the mitigation measures as recommended in the report entitled *Eureka Fuel Storage Product Transfer Areas Analysis Report*, October 2009.
For example:

- Drive-In/drive-out fuel containment pans have been installed at the gasoline/diesel pump re-fuelling location.
- Fuel containment pans have been purchased and installed at various locations in Eureka where storage of drummed fuels takes place such as the POL area and the airstrip.

5.1.3 Maintenance and Inspection Programs

Eureka has implemented Operational Procedures for Inspections and Maintenance of Storage Tank Systems. This consists of Monthly and Annual Checklists (see Appendices Q & R) in order to ensure that the components of Eureka's systems are compliant with the inspection and maintenance requirements of the FSTS regulations, and that Eureka is following best management practices. Copies of the checklists are kept on file in the Station Manager's Office of the Operations Complex.

The maintenance and inspection program aids in minimizing the possibility of fuel spills due to equipment failures, demonstrates due diligence, and is in compliance with FSTS regulations.

5.1.3.1 Monthly Visual Inspection Checklist

A monthly visual inspection is performed by ECCC personnel for its tanks, single walled piping, and related storage tank system components. Copies of the inspection are kept on file in the Eureka Station Manager Office of the Operations Complex.
ECCC's site (both inside and outside buildings) is patrolled by ECCC personnel on a constant basis in order to monitor, by sight or smell, for fuel leaks.

The components of the monthly checklist which are monitored for all FSTS, with the exception tank farm, consist of the following:

1. Inspection of all aboveground tanks and piping for surface rust
2. Inspection of the integrity of the distribution piping
3. Inspection of the vent cap on the tank to ensure it is not obstructed
4. Verification of the refill pipe cover to ensure it is firmly attached to the refill pipe
5. Verification of the integrity of the labels and plates located on the refill pipe
6. Inspection of the interior of the tanks to identify any possible water accumulation (where possible)
7. Maintenance of the valve, by repeatedly opening and closing it, to ensure it is working correctly and to prevent jamming

(See Appendix Q for a copy of the template of the monthly visual inspection checklist)

On a regular basis (for the tank farm):

1) The meters on all tanks at the tank farm are read to identify potential leaks
2) The accuracy of the tank meters is confirmed by lowering a measuring tape to gauge the fuel depth (see Figure 6). This latter reading for each tank is compared to the corresponding tank meter reading to determine if there are any discrepancies;
3) A check is made to confirm that all tank valves are closed except the ones in use;
4) A regular check is made of the motorized valve at the tank farm that opens the pipeline from one of the 60,000 L tank farm diesel fuel tanks to the powerhouse or the dispensing pump when there is a demand for diesel. It is critical that this motorized valve is operational and does not "freeze" in the open position which would cause the previously mentioned sections of the pipeline to be 'charged'. If these sections of the pipeline became damaged while the valve was in the open position, a maximum of 60,000 L tank of diesel could spill onto the land. The motorized valve must be visually checked regularly to ensure the heater is working (no frost on the heater & flag is in right direction indicating valve is off when there is no demand for fuel);
5) All tanks and associated pipelines are checked; and

6) The secondary containment area inside the berm of the tank farm is scrutinized to confirm that are no pools of oil collecting.

Figure 6: Measuring Tank Levels by Dipping

5.1.3.2 Annual Inspection Checklist

The annual inspection of all FSTS is to include the following elements:

- Inspection of all safety measures and equipment
- Inspection of the tank's overfill protection devices
- Inspection of leak detection and leak collection devices
- Inspection of all refuelling devices
- Inspection of the fixed devices connected to the tank system
- Inspection of all markings and signage
- Inspection of all tank system piping
- Review of emergency procedures and documentation

Copies of this documentation are filed in the Eureka Station Manager Office.
(See Appendix R for a copy of the Annual Inspections Checklist.

The Tank Farm containment berm is inspected yearly and, if necessary, repaired to ensure its integrity.

The tank internal inspection program for the Tank Farm (EC-00001218) is performed once every 10 years or based on API 653 inspection results (CEPA).

5.1.4 Emergency Preparedness Checklist (Cross reference table)

An emergency preparedness checklist which cross references the FSTS Regulations has been created in order to ensure that this emergency plan meets all the requirements of sections 30 to 32 of these Regulations. The table illustrates that all the mandatory requirements have been met with respect to CEPA 2008-197, TDG Regulations SOR/2008-34, with management practices outlined in CCME 2003 and the National Fire Code NFCC 2005. (Refer to Appendix S)

5.1.5 Labeling

All tanks subject to SOR/2008-197 have a plate bearing the Environment and Climate Change Canada identification number. Furthermore, all tanks are to display the appropriate WHMIS/TDG labels directly on a part of the tanks such that they are clearly visible to personnel accessing the tanks.

All of these labels are:

- Clearly visible and legible
- Weather- and transport-resistant
- Water-repellent and water-resistant
- Appropriately shaped/sized

5.1.6 Diesel Fuel Conveyance Safety Measures

Tank Farm diesel is only conveyed via the piping system to the power house/diesel dispenser from the 60,000 L tanks. This measure ensures that, if:

1) the motorized valve (discussed above) fails to close, leaving the piping system "charged" and
2) there is a break in the piping system outside the tank farm,

Then the potential oil spill is limited to ~ 50,000 L and not 700,000 L.

5.1.7 Diesel and Gasoline Dispensing Safety Measures

The nozzles on the diesel dispenser and gasoline tank are constructed with self-serve safety devices to ensure that fuel can only be delivered if a human is present.

5.1.8 Spill kits

Currently there are 8 spill kits located within the Eureka site. The spill kits are located in close proximity to the various FSTS located throughout the facility. This includes the pipeline manifold, the power house, warehouse (EC-00001146), old garage (EC-00001212), incinerator (EC-00001214), re-fuelling area (fuel dispensers), gasoline tank (EC- 00001251) and mobile fuel wagon. See figure 7 below for the specific location of the 8 spill kits.

5 of the 8 spill kits contain the following;

50	- 15" x 19' pads
4	- 3" x 12' SOCs
8	- 18" x 18" Pillows
1	- Goggles
1	- pair Nitrile Gloves
5	- Disposable bags
1	- Emergency Handbook

3 of the 8 spill kits are considered spill buckets and they contain the following;

10	- 15" x 19' pads
3	- 3" x 4' SOCs
1	- Pair nitrile gloves
2	- Disposable bags
1	- Instruction sheet

Figure 7: Location of spill kits at Eureka

5.1.9 Training

Training/instruction will assist in the prevention of petroleum and allied petroleum spills and the mitigation of associated health effects.

5.1.9.1 General Health and Safety Training

All ECCC employees and contractors are trained in the following:

1) Workplace Hazardous Materials Information System (WHMIS);
2) First Aid and CPR; and
3) Transportation of Dangerous Goods

A MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

A Workplace Hazardous Materials Information System (WHMIS) manual is located in the front vestibule of the main complex.

Training for employees who may be involved in inspection of fuel tank systems, fuel transfer operations and/or response to a spill is currently being developed. Training will include live exercises.

5.2 Preventative Initiatives In progress

The following is a list of recently initiated preventative measures at the facility.

5.2.1 Product Transfer Areas (PTA)

Drive-in/Drive-out metal secondary containment pans have been installed in the fuel transfer area of the fuel tank farm and the airstrip locations. An additional investigation into the feasibility of installing “no-spill” hose connections on to the Eureka re-fuelling hoses is being undertaken. The re-fuelling hoses are sent south each year to be pressure tested at an accredited facility before they are shipped back to Eureka for use in the re-fuelling process the following year.

6. SPILL CONTINGENCY

This section within this EERP details all aspects of the organization’s response in the event of accidental release of petroleum products. The following response section demonstrates preparedness within Eureka to respond quickly and efficiently to spills,

and/or other emergencies, in order to limit the danger or damage posed by the accidental release of petroleum products.

This section outlines individual roles and responsibilities relating to the plan, protocol on how information is disseminated both internally and externally in the event of an emergency, as well as procedures for emergency response, reporting, containment and management.

This section is divided into four sections:

1) Major roles and responsibilities
2) Health, safety and environmental measures common to all spill events;
3) Responses to a spill in a non-marine environment; and
4) Responses to a spill in a marine environment.

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6.1 Major Roles and Responsibilities

6.1.1 Eureka Station Program Manager

The Station Program Manager occupies the pivot role in the operations at Eureka HAWS, in general and a response to a petroleum-related spill, in particular:

1) Gathering personnel and resources and deploying and directing them in stopping, controlling, containing, storing and disposing of the spent petroleum product;
2) Communicating details of the spill to the Spill Response Centre and ECCC's Manager, Technical Services, if spill > 100 L;
3) Providing medical care to any injured persons;
4) Providing regular updates to ARPSD on containment and cleanup activities; and
5) Completing and submitting a spill report form.

6.1.2 Manager, ECCC Real Property Services

Upon spill notification, Manager, ECCC Real Property Services is responsible for public relations, insurance and legal issues relating to an incident, as well as ongoing liaison with other Government Departments and Governments.

In the event that the spill cannot be handled internally, then the Manager, ECCC Real Property Services will request assistance from the Nunavut Government's Department of Sustainable Development (DSD) to provide the appropriate expertise to deal with a large spill at Eureka. In the meantime, Eureka staff will use best efforts to contain and control the spill by deploying its equipment in the spill area. However, once DSD or their contractor arrives on site, they may utilize any equipment currently deployed in addition to any equipment that they may have brought with them.

In the case of a major spill involving potentially large expenditure for cleanup costs and contentious claims from third parties, specialized legal counsel will be consulted. Manager, ECCC Real Property Services will be responsible for arranging for legal advice

6.2 Health and Safety Measures

The following health and safety measures apply to both marine and non-marine spill scenarios

6.2.1 Site Control

In the event of a petroleum or allied petroleum product discharge, an immediate assessment shall be made to ensure that the site is secure. Any incident involving spills or leaks can attract curious onlookers, and therefore all non-authorized personnel shall be kept well outside any hazardous area. Only those directly involved in the containment, control or cleanup of the discharge shall be allowed in the general vicinity of the discharge.

6.2.2 Fires

In the event of a fire, fire extinguishers, fire hoses, axes and pull stations can be accessed throughout all major buildings on site.

6.2.3 Slippery Rocks, Decks or Other West Surfaces

Any person working in the vicinity of the shoreline shall wear oil-resistant rubber, steel-toed safety boots.

6.2.4 Working Around Water

All personnel working in close proximity to the water shall wear the appropriate Personal Flotation Devices (PFDs). Persons working on shore do not have to wear PFDs.

6.2.5 Buddy System

A buddy system shall be observed at all times when workers are in the discharge area or working on vessels. Persons shall work within sight of their assigned partner at all times.

6.2.6 Personnel Protective Equipment (PPE) Requirements

The following outlines the personnel protective equipment requirements for Eureka:

1) Selection of outer PPE shall be based on the potential for whole body contact with the product. A potential for repeated contact shall require rain gear (top and bottoms). Clothing shall be kept zippered when handling dangerous materials;
2) Personnel carrying out work where high body-contact with the spilled substance could take place, shall tape the suit over their gloves and boots;
3) Personnel with limited skin contact potential may wear disposable clean guard garments or equivalent. Personnel with no exposure potential (inspectors, monitors, etc.) need not wear protective clothing;
4) All personnel shall wear safety glasses (regular glasses are satisfactory); and
5) Personnel handling contaminated materials shall wear outer chemical resistant gloves. Sleeves shall be taped whenever handling contaminated wet materials.

6.2.7 Protection of Personnel

Any significant spills of volatile products can cause a significant threat to personnel if the vapour plume approaches a populated area. Based on the wind direction a determination of the potential area of impact shall be made and personnel shall be notified of any potential hazard.

6.2.8 Decontamination

In the event of a spill, decontamination stations may be established in the vicinity of a contaminated area. The configuration of the decontamination stations shall be such that the personnel shall pass through one of the stations prior to leaving the contaminated area. If necessary, the stations may be surrounded by a berm and lined with plastic sheeting. Special purpose washing solutions may be placed near the discharge area. All washing solutions shall be clearly marked.

6.2.9 Waste Petroleum and Allied Petroleum Storage

Secondary containment for waste petroleum and allied petroleum products awaiting disposal is provided in the form of salvage drums, crates constructed with plastic lining or secondary containment pallets at the Barrel Storage Area.

In all cases, the disposed material is:

1) Packaged and labelled; and
2) Accompanied by a manifest

in conformity with regulatory requirements (see Appendix A; *TDG*, *Interprovincial Movement of Hazardous Waste Regulations*). Copies of manifests are retained and filed at the Station Program Manager's Office at Eureka. (See Appendix T for example of Manifest)

The completed manifest form provides the detailed information on:

- the types and amounts of hazardous waste shipped;
- record of the parties involved in the shipment;
- on the storage, treatment or disposal of the waste and;
- the confirmation that the waste reached the final destination.

The Generator (Consignor), Carrier and Receiver (Consignee) must each complete their portion of the manifest

6.3 Non-Marine Spill Response

This section provides:

1) A spill response chart (see Figure 8); and
2) Detailed procedures for responding to non-marine oil spills.

6.3.1 Spill Response Organization & Roles & Responsibilities

The reduction in the number and severity of spills is facilitated by a comprehensive and clearly articulated spill response organization. Figure 8 outlines the flow chart of response in the event of a spill. The details of the roles and responsibilities are explained in the subsequent sub-sections

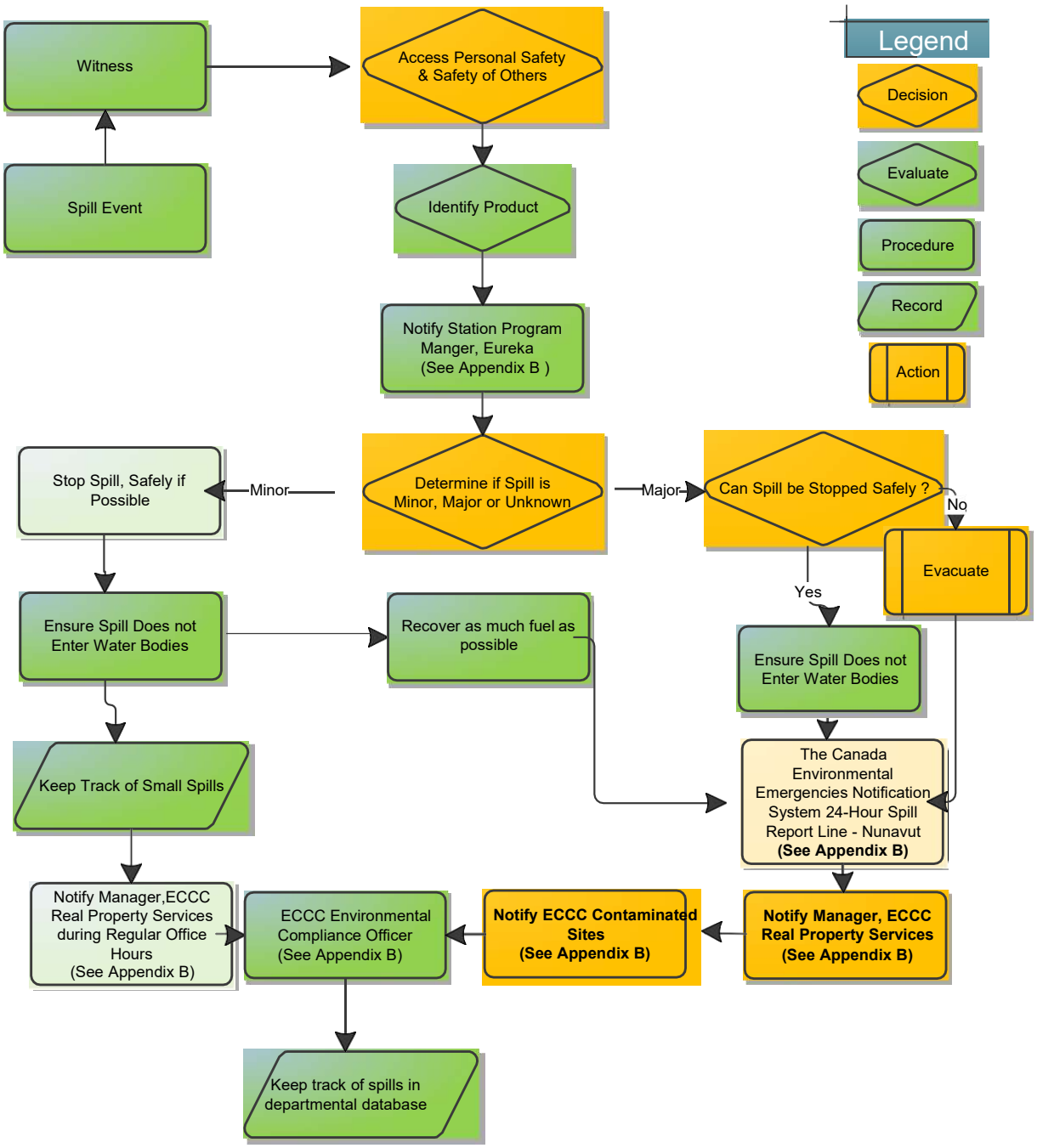

Figure 8: Response Organization for a Non-Marine Petroleum Spill

6.3.2 Procedures for Initial Actions

In the event of a spill, without exception, the health and safety of persons at Eureka is the first priority.

1) Ensure personal safety and that of others.
2) Assess spill hazards and risks.
3) No matter what the volume is, notify Eureka - Station Program Manager. (see Appendix B)
4) Remove all sources of ignition.
5) Stop the spill if safely possible e.g. shut off pump, patch leaking hole. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so.
6) Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
7) Contain the spill.

6.3.3 Procedures for Spill Reporting

Spills at Eureka are required to be reported under various pieces of Environmental Legislation as listed in Appendix B, but more specifically:

1. The Nunavut Water Board License
2. CEPA, 1999, paragraph 212(1)(a)
3. Fisheries Act, subsection 38(4)
4. Government of Nunavut, EPA, paragraph 5.1(a)

(A spill of any amount must be reported if it affects a body of water). These types of spills must be reported to:

1) The Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut ; This service is used throughout the NWT to inform all relevant government departments (federal, territorial and/or Aboriginal) that a spill has occurred.
2) Canadian Coast Guard for marine pollution incident.

See **Appendix B** for all Spill Emergency Telephone Numbers.

Any spills less than 100 L do not need to be reported immediately to the spill reporting line. Rather, these minor spills should be tracked and documented by Eureka and submitted to the Nunavut Water Board in Environment and Climate Change Canada's Annual Report to the Board (see Appendix B).

If the spill affects a body of water it must be reported to Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B).

If there is any doubt that the quantity spilled exceeds reportable levels, the spill should be reported to the Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B).

Following gaining control and containment of the spill, the Station Program Manager (SPM) must complete and submit the Environment and Climate Change Canada and Nunavut Spill Report Form (See Appendix P).

6.3.4 Procedures for Containing and Controlling the Spill

Initiate spill containment by first determining what will be affected by the spill.

1) Assess speed and direction of spill and cause of movement (water, wind and slope).
2) Determine best location for containing spill, avoiding any water bodies.

6.3.5 Procedures for Containment of Petroleum Products Spilled on Land, Water, Ice and Snow

6.3.5.1 Procedures for Containment of Spills on Land

Spills on land include spills on rock, gravel, soil and/or vegetation. It is important to note that soil is a natural sorbent, thus spills on soil are generally less serious then spills on water as contaminated soil can be more easily recovered. Generally spills on land occur during the late spring, summer or fall when snow cover is at a minimum. It is important that all measures be undertaken to avoid spills reaching open water bodies.

1) Dykes

Dykes can be created using soil surrounding a spill on land. These dykes are constructed around the perimeter or down slope of the spilled fuel. A dyke needs to be built up to a size that will ensure containment of the maximum quantity of fuel that may reach it. A plastic tarp can be placed on and at the base of the dyke such that fuel can pool up and subsequently be removed with sorbent materials or by pump into barrels or bags. If the spill is migrating very slowly a dyke may not be necessary and sorbents can be used to soak up fuels before they migrate away from the source of the spill.

2) Trenches

Trenches can be dug out to contain spills as long as the top layer of soil is thawed. Shovels, pick axes or a loader can be used depending on the size of trench required. It is recommended that the trench be dug to the bedrock or permafrost, which will then provide containment layer for the spilled fuel. Fuel can then be recovered using a pump or sorbent materials.

6.3.5.2 Procedures for Containment of Spills on Land that reach a body of water

Spills that reach water such as Station Creek at Eureka are the most serious types of spills as they can negatively impact water quality and aquatic life. All measures need to be undertaken to contain spills on open water.

1) Booms

Booms are commonly used to recover fuel floating on the surface of lakes or slow moving streams. They are released from the shore of a water body to create a circle around the spill. If the spill is away from the shoreline a boat will need to be used to reach the spill, then the boom can be set out. More than one boom may be used at once. Booms may also be used in streams and should be set out at an angle to the current. Booms are designed to float and have sorbent materials built into them to absorb fuels at the edge of the boom. Fuel contained within the circle of the boom will need to be recovered using sorbent materials or pumps and placed into barrels or bags for disposal.

2) Weirs

Weirs can be used to contain spills in streams and to prevent further migration downstream. Plywood or other materials found on site can be placed into and across the width of the stream, such that water can still flow under the weir. Spilled fuel will float on the water surface and be contained at the foot of the weir. It can then be removed using sorbents, booms or pumps and placed into barrels or plastic bags.

3) Barriers

In some situations barriers made of netting or fence material can be installed across a stream, and sorbent materials placed at the base to absorb spilled fuel. Sorbents will need to be replaced as soon as they are saturated. Water will be allowed to flow through. This is very similar to the weir option discussed above. Note that in some cases, it may be appropriate to burn fuel or to let volatile fuels such as gasoline evaporate after containment on the water surface. This should only be undertaken in consultation with, and after approval from the INAC or lead agency Inspector.

6.3.5.3 Procedures for Containment of Spills on Ice

Spills on ice are generally the easiest spills to contain due to the predominantly impermeable nature of the ice. For small spills, sorbent materials are used to soak up spilled fuel. Remaining contaminated ice/slush can be scraped and shovelled into a plastic bag or barrel. However, all possible attempts should be made to prevent spills from entering ice covered waters as no easy method exists for containment and recovery of spills if they seep under ice.

1) Dykes

Dykes can be used to contain fuel spills on ice. By collecting surrounding snow, compacting it and mounding it to form a dyke down slope of the spill, a barrier is created thus helping to contain the spill. If the quantity of spill is fairly large, a plastic tarp can be placed over the dyke such that the spill pools at the base of the dyke. The collected fuel can then be pumped into barrels or collected with sorbent materials.

2) Trenches

For significant spills on ice, trenches can be cut into the ice surrounding and/or down slope of the spill such that fuel is allowed to pool in the trench. It can then be removed via pump into barrels, collected with sorbent materials, or mixed with snow and shovelled into barrels or bags.

3) Burning

Burning should only be considered if other approaches are not feasible, and is only to be undertaken with the permission of the Indian and Northern Affairs Canada (INAC) or lead agency Inspector.

6.3.5.4 Procedures for Containment of Spills on Snow

Snow is a natural sorbent, thus as with spills on soil, spilled fuel can be more easily recovered. Generally, small spills on snow can be easily cleaned up by raking and shovelling the contaminated snow into plastic bags or empty barrels, and storing these at an approved location.

1) Dykes

Dykes can be used to contain fuel spills on snow. By compacting snow down slope from the spill, and mounding it to form a dyke, a barrier or berm is created thus helping to contain the spill. If the quantity of spill is fairly large, a plastic tarp can be placed over the dyke such that the spill pools at the base of the dyke. The collected fuel/snow mixture can then be shovelled into barrels or bags, or collected with sorbent materials.

6.3.5.5 Procedures for Transferring, Storing and Managing Petroleum Spill Wastes

In most cases, spill cleanups are initiated at the far end of the spill and contained moving toward the centre of the spill. Sorbent socks and pads are generally used for small spill cleanup. A pump with attached fuel transfer hose can suction spills from leaking containers or large accumulations on land or ice, and direct these larger quantities into empty drums. Hand tools such as cans, shovels, and rakes are also very effective for small spills or hard to reach areas. Heavy equipment can be used if deemed necessary, and given space and time constraints.

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located at Eureka. Following clean up, any tools or equipment used will be properly washed and decontaminated, or replaced if this is not possible.

For most of the containment procedures outlined above, spilled petroleum products and materials used for containment will be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

6.4 Marine Spill Response (During Resupply)

This section of the Plan is designed to enable Eureka personnel to be prepared for and respond to marine based spills of diesel fuel at Eureka HAWS during the annual sea lift operation.

6.4.1 Spill Response Organization & Roles & Responsibilities

The reduction in the number and severity of spills is facilitated by a comprehensive and clearly articulated spill response organization. Figure 9 outlines the flow chart of response in the event of a marine spill.

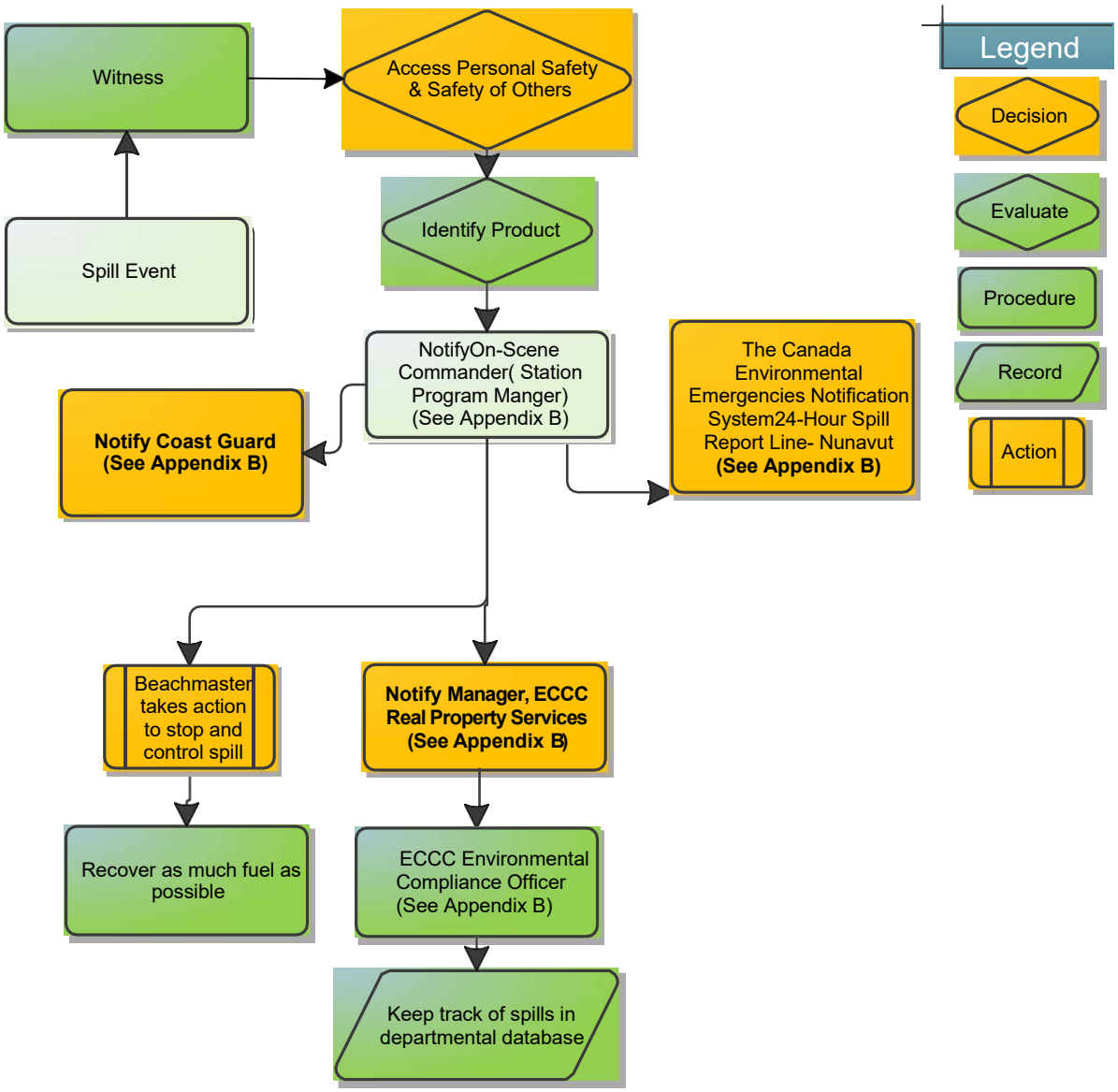

Figure 9: Response Organizations for a Marine Petroleum Spill

6.4.2 Steps Initiated Prior to Arrival of Coast Guard Ship

1) All of the equipment (see Appendix O) is pre-staged and ready for deployment prior to the CCG icebreaker's arrival
2) The containment boom is stored in a shack located on the shore edge to allow for quick deployment onto the water by CCG water craft.
3) Tow lines connected to either end of the boom will allow CCG water craft to connect to the boom and encircle a spill and direct it away from sensitive areas
4) Pipeline from shore to Tank Farm has been pressure tested
5) Any oil remaining in the 770,000 L tank has been transferred to other tanks within the Tank Farm

6.4.3 Steps Initiated Following Arrival of Coast Guard Ship

1) The Beach Master assumes control of the transfer operation and has full authority to stop the operation if he deems it unsafe for any reason and is expected to take such action
2) There are sufficient personnel on site to manage the transfer operation and any subsequent oil pollution incident

6.4.4 Steps Initiated Following a Marine Spill Incident

The health and safety of persons at Eureka is the first priority

1) In the event of a marine oil pollution incident, the Station Program Manager assumes the responsibility of the On-Scene Commander (OSC) and will request the Beach Master to immediately take action to contain or control the released product as quickly as possible providing this can be done safely.
2) Ensure personal safety of self and others.
3) Assess spill hazards and risks.
4) No matter what the volume is, notify Eureka – Station Program Manager (see Appendix B); and
5) Remove all sources of ignition.
6) Stop the spill if safely possible e.g. shut off pump, patch leaking hole. Use the contents of the nearest spill kit to aid in stopping the spill if it is safe to do so.
7) Tyvek suits and chemical master gloves are located in the spill kit and should be worn immediately if there is any risk of being in contact with fuel.
8) Contain the spill.
9) Determine the direction of any winds. If from the east, the following actions should be initiated to protect the Arctic Tern nesting grounds located at the delta approximately 200 M west of the connection of the floating transfer hose to the shore side pipeline:
    a. Scare any birds in the area
    b. If containment of the spill is ineffective, the boom should be relocated to protect the shoreline along the delta

6.4.5 Procedures for Containing and Controlling the Spill

1) Beachmaster will contact the icebreaker immediately to shut down the transfer of fuel.
2) Onshore valves will be immediately closed to prevent any back flow from the pipeline in the event the check valve fails.
3) Area will be secured.
4) CCG will deploy the containment booms downwind and down current to contain the spilled fuel.
5) If deployment of the containment boom is unsafe, ineffective or impractical the fuel spill will be dispersed into deep water by high pressure water hoses from the CCG ship for natural dissipation.
6) If the containment is ineffective, the boom will be relocated to protect the shoreline along the delta.
7) Attempt will be made to adsorb as much of the spill as possible by skimming the water surface with the sorbent booms and soaking up the remainder of the spill with absorbent rolls

6.4.6 Procedures for Spill Reporting

Spills at Eureka are required to be reported under various pieces of Environmental Legislation as listed in Appendix B, but more specifically:

1. The Nunavut Water Board License
2. CEPA, 1999, paragraph 212(1)(a)
3. Fisheries Act, subsection 38(4)
4. Government of Nunavut, EPA, paragraph 5.1(a)

An immediately reportable petroleum spill on water is defined as a release of any amount. It must be reported to:

1) Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut (see Appendix B);

See Appendix B for Emergency Spill Telephone Numbers.

Following gaining control and containment of the spill, the Station Program Manager (SPM) must complete and submit the Environment and Climate Change Canada and Nunavut Spill Report Form (See Appendix P).

7. Procedures for Transferring, Storing and Managing Petroleum Spill Wastes

Sorbent socks and pads are generally used for small spill cleanup. A pump with attached fuel transfer hose can suction spills from leaking containers or large accumulations on land or ice, and direct these larger quantities into empty drums. Hand tools such as cans, shovels, and rakes are also very effective for small spills or hard to reach areas. Heavy equipment can be used if deemed necessary, and given space and time constraints.

Used sorbent materials are to be placed in plastic bags for future disposal. All materials mentioned in this section are available in the spill kits located at Eureka. Following clean up, any tools or equipment used will be properly washed and decontaminated, or replaced if this is not possible.

For most of the containment procedures outlined above, spilled petroleum products and materials used for containment will be placed into empty waste oil containers and sealed for proper disposal at an approved disposal facility.

8. Procedures for Restoring Affected Areas

Once a spill has been contained it will be managed according to Environment and Climate Change Canada's *Summary of Operations And Maintenance Procedures For Drinking Water, Sewage, Solid Waste Disposal and Waste Treatment Facilities – Eureka High Arctic Weather Station, 2009.* Environment and Climate Change Canada – Environmental Programs, Contaminated Sites should be consulted for advice (see Appendix B)

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9. Procedures for Disposal

The final destinations for the two following petroleum products are as follows:

- Petroleum products collected from spill events are sent by sealift to Safety-Kleen (Quebec) Ltd.,85 rue de Hambourg, Saint-Augustin-de Desmaures, QC G3A 1S6.

- Waste glycol is sent by sealift to Safety-Kleen (Quebec) Ltd.

APPENDIX A: FEDERAL AND TERRITORIAL LEGAL AND POLICY REQUIREMENTS

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Federal Legislation		
Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations	• S.30-31,32, 41 • Technical standards related to tank systems holding petroleum or allied petroleum products • Emergency Plan Requirements	https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-197/index.html
Transportation of Dangerous Goods Act and Regulations	• Transport manifest • Identify & classify waste • Packaging • Labelling	https://laws-lois.justice.gc.ca/eng/acts/T-19.01/
Nunavut Water Board Licence No. 8BC-EUR1621	• Part H • Requirement for a Spill Contingency Plan • Plan requirements	On File
Canada Occupational Health and Safety Regulation, Part X – Hazardous Substances	• Records of hazardous substances • Hazard investigation • Storage, handling & use • Warnings of hazardous materials • Employee education • Control of hazards	https://laws.justice.gc.ca/eng/regulations/SOR-86-304/index.html
Canada Shipping Act	• Response Measures (s.180) • Requirements of Oil Handling Facilities (s.168)	https://laws-lois.justice.gc.ca/eng/acts/C-10.15/
Canadian Environmental Protection Act (Part 8) (CEPA)	• Petroleum is a hazardous substance • Reporting of spills • Remedial measures	https://laws-lois.justice.gc.ca/eng/acts/c-15.31/
Controlled Products Regulations	• MSDS • Labels • Classes of controlled products	https://laws-lois.justice.gc.ca/eng/regulations/SOR-88-66/index.html
Environmental Emergency Regulations	• Waste information • Emergency environmental plan	https://laws-lois.justice.gc.ca/eng/regulations/SOR-2019-51/index.html
Environmental Enforcement Act	• Penalties for environmental offences • liabilities and duties of corporate directors and officers	https://www.canada.ca/en/environment-climate-change/services/environmental-enforcement/acts-regulations/about-act.html

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Export and Import of Hazardous Wastes Regulations	• Release of substances • List of toxic substances	https://laws-lois.justice.gc.ca/eng/regulations/SOR-2005-149/index.html
Fisheries Act	• Prohibitions • Duties of persons handling hazardous waste	https://laws-lois.justice.gc.ca/eng/acts/F-14/
Hazardous Products Act	• Designates diesel and gasoline as hazardous products	https://laws-lois.justice.gc.ca/eng/acts/H-3/page-1.html
Interprovincial Movement of Hazardous Waste Regulations	• Manifests	https://laws-lois.justice.gc.ca/eng/regulations/SOR-2002-301/index.html
Migratory Birds Convention Act	• Prohibitions	https://laws-lois.justice.gc.ca/eng/acts/m-7.01/
Nunavut Legislation		
Safety Act (Nunavut)	• Safety duties of employers • Safety duties of employees • Powers and duties of safety operators	https://www.canlii.org/en/nu/laws/stat/rsnwt-nu-1988-c-s-1/latest/rsnwt-nu-1988-c-s-1.html
Spill Contingency Planning and Reporting Regulations (Nunavut)	• Requirement for a Spill Contingency Plan • Spill Report Form	http://www.canlii.org/en/nu/laws/regu/nwt-reg-nu-068-93/latest/nwt-reg-nu-068-93.html
CONSOLIDATION OF OCCUPATIONAL HEALTH AND SAFETY REGULATIONS (Nunavut)	• Worker education • Hazardous material labels	https://www.canlii.org/en/nu/laws/regu/nu-reg-003-2016/latest/nu-reg-003-2016.html
Federal Policy		
Environment and Climate Change Canada's Departmental Sustainable Development Strategy	• ECCC Commitments	https://www.canada.ca/en/environment-climate-change/corporate/transparency/priorities-management/departmental-sustainable-development-strategy/2020-2023.html
Codes of Practice/Guidelines		
Canadian Labour Code II	• Duties of employer • Duties of employees	https://laws-lois.justice.gc.ca/eng/acts/L-2/
Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products	• Registration and approval of tank systems • Design and installation • Monitoring and leak detection • Operation and maintenance • Withdrawal of systems	https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/publications/code-practice-storage-tank-systems.html

National Building Code	• Safety • Health • Accessibility • Fire and Structural Protection of Buildings	https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-building-code-canada-2015
National Fire Code	• Safety • Health • Fire Protection of Buildings and Facilities	https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-fire-code-canada-2015

Environmental, Health & Safety Legislation, Policies, Agreements, etc.	Major Provisions	Reference
Technical Guidelines for Above Ground Storage Tank Systems that contain Petroleum Products and Allied Petroleum Products	• Regulatory requirements • Timelines for existing systems • Leak detection & monitoring • Record keeping	http://www.ec.gc.ca/st-rs/default.asp?lang=En&n=400DB49F-1
Implementation Guidelines for Part 8 of the Environmental Protection Act 1999 – Environmental Emergency Plans	• Emergency reporting requirements • Compliance and enforcement	http://www.ec.gc.ca/CEPARegistry/guidelines/impl_guid/toc.cfm

APPENDIX B: SPILL EMERGENCY TELEPHONE NUMBERS

EUREKA EMERGENCY CONTACTS & TELEPHONE #'s

CONTACT	Telephone Numbers
Medical Assistance	
Nurse (Resolute Bay) Health Center	(867) 252-3844
Doctor (Iqaluit Hospital)	(867) 975-8600
Medical Evacuation, Kenn Borek Air (Resolute)	(867) 252-3845
Spill Emergency Reporting Centers	
Canada Environmental Emergencies Notification System 24-Hour Spill Report Line - Nunavut	(867) 920-8130
Canadian Coast Guard Emergency Line (24 hours) In all regions, marine pollution incidents may also be reported by contacting a MCTS centre on VHF channel 16.	1-800-265-0237
Federal	
Environment and Climate Change Canada – Station Program Manager, Eureka, NU (from Ottawa line)	(613) 945-3145 wait for dial tone 7935 wait for dial tone 4460
Stephan Dinel, Senior Manager, Arctic and Reg. Ops, Environment and Climate Change Canada	(514) 923-6154
Ryan Breivik, A/Manager, ECCC Real Property Services, Environment and Climate Change Canada	(905) 869-8395
Environment and Climate Change Canada – Environmental Compliance Officer, Environmental Programs, Property Management Division, Ottawa, ON	819-938-4765 (Deniz Baykal) New Director in BC Marlene Elliott (604) 329-7974
Environment and Climate Change Canada – Environmental Programs, Contaminated Sites	819-938-4765 (Deniz Baykal)
Nunavut Water Board, Gjoa Haven, NU	(867) 360-6338
Tony Deveau, Superintendent, Upper Air Network, Environment and Climate Change Canada	(902) 229-4342
Crown-Indigenous Relations and Northern Affairs Canada, Iqaluit, NU (spills)	(867) 222-8458

Crown-Indigenous Relations and Northern Affairs Canada Water Resources Inspector Joseph Monteith	(867) 975-4289
HRSDC (Human Resources and Skills Development Canada-Labour Program)	Working Hours 1-800-641-4049
Environment and Climate Change Canada, Environmental Enforcement Branch (Yellowknife)	Working Hours (867) 975-4644 After Working Hours (867) 222-1925
Territorial	
Department of Environment, Government of Nunavut	(867) 975-7700
Eureka	
DND (Eureka)	(613) 945-3145 (Ext: 4469 or 4450)
Polar Continental Shelf Program - Resolute	(867) 252-3872
Media & Public Enquiries	
Environment and Climate Change Canada - Media Relations	1-844-836-7799 or ec.media.ec@canada.ca

IMMEDIATELY REPORTABLE SPILL QUANTITIES

TDG Class	Substance for NWT 24 Hour Spill Line	Immediately Reportable Quantities
1 2.3 2.4 6.2 7 None	Explosives Compressed gas (toxic) Compressed gas (corrosive) Infectious substances Radioactive Unknown substance	Any amount
2.1 2.2	Compressed gas (flammable) Compressed gas (non-corrosive, non-flammable)	Any amount of gas from containers with a capacity greater than 100 L
3.1 3.2 3.3	Flammable liquids	> 100 L
4.1 4.2 4.3	Flammable solids Spontaneously combustible solids Water reactant	> 25 kg
5.1 9.1	Oxidizing substances Miscellaneous products or substances excluding PCB mixtures	> 50 L or 50 kg
5.2 9.2	Organic peroxides Environmentally hazardous	> 1 L or 1 kg
6.1 8 9.3	Poisonous substances Corrosive substances Dangerous wastes	> 5 L or 5 kg
9.1	PCB mixtures of 5 or more ppm	> 0.5 L or 0.5 kg
None	Other contaminants (e.g. crude oil, drilling fluid, produced water, waste or spent chemicals, used or waste oil, vehicle fluids, waste water, etc.)	> 100 L or 100 kg
None	Sour natural gas (i.e. contains H2S) Sweet natural gas	Uncontrolled release or sustained flow of 10 minutes or more

Source: http://www.aadnc-aandc.gc.ca/eng/1100100024236#aB3

APPENDIX C:2021 MSDS SHEETS FOR DIESEL STORED IN EUREKA'S STORAGE TANK SYSTEM

An MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

SAFETY DATA SHEET

DIESEL FUEL

000003000395

Version 6.0 | Revision Date 2021/02/08 | Print Date 2021/02/08

SECTION 1. IDENTIFICATION

Product name	:	DIESEL FUEL
Synonyms	:	Seasonal Diesel, #2 Diesel, #1 Diesel, #2 Heating Oil, #1 Heating Oil, OSX, D50, Arctic Diesel, Farm Diesel, Marine Diesel, Low Sulphur Diesel, LSD, Ultra Low Sulphur Diesel, ULSD, Mining Diesel, Naval Distillate, Dyed Diesel, Marked Diesel, Coloured Diesel, Furnace special, Biodiesel blend, B1, B2, B5, Renewable Diesel blend (RX where X is 2- 50, X is representative of volume %), Diesel Low Cloud (LC), Marine Gas Oil, Marine Gas Oil Dyed.
Product code	:	103180, 103179, 103193, 103178, 103136, 103135, 103134, 103133, 103132, 103131, 101799, 102907, 102762, 102763, 102755, 102302, 102744, 101801, 100678, 100677, 101802, 100107, 100668, 100658, 100911, 100663, 100652, 100460, 100065, 101796, 101793, 101795, 101792, 101794, 101791, 100768, 100643, 100642, 100103, 101798, 101800, 101797, 101788, 101789, 101787, 102531, 100734, 100733, 100640, 100997, 100995, 100732, 100731, 100994
Manufacturer or supplier's details		Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada
Emergency telephone number		CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

Recommended use	:	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining diesels, marine diesels, MDO and naval distillates may have a higher flash point requirement.
Prepared by	:	Product Safety

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Bright oily liquid.
Colour	Clear to yellow (This product may be dyed red for taxation purposes)
Odour	Mild petroleum oil like.

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Inhalation)	:	Category 4
Skin irritation	:	Category 2
Carcinogenicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure	:	Category 2 (Liver, thymus, Bone)
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements :
Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Harmful if inhaled.
May cause drowsiness or dizziness.
Suspected of causing cancer.
May cause damage to organs (Liver, thymus, Bone) through prolonged or repeated exposure.

Precautionary statements :
Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.

Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified	64742-81-0	48 - 100 %
Kerosine (petroleum); Straight run kerosine	8008-20-6	
Fuels, diesel; Gasoil — unspecified	68334-30-5	
Alkanes, C10-20-branched and linear	928771-01-1	0 - 50 %
Fatty acids, C16-18 and C18-unsatd., Me esters	67762-38-3	0 - 20 %

All above concentrations are in percent by weight.

SECTION 4. FIRST AID MEASURES

If inhaled : Move to fresh air.
Artificial respiration and/or oxygen may be necessary.
Seek medical advice.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Wash skin thoroughly with soap and water or use recognized skin cleanser.
Wash clothing before reuse.
Seek medical advice.

In case of eye contact : Remove contact lenses.

		Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	:	Harmful if inhaled. Respiratory, skin and eye irritation; nausea; cancer.
Notes to physician	:	Treat symptomatically. For specialist advice physicians should contact the Poisons Information Service.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during fire-fighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	:	Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight. Ensure the storage containers are grounded/bonded.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified	64742-81-0	TWA	200 mg/m3 (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	525 mg/m3	CA ON OEL
		TWA	200 mg/m3 (As total hydrocarbon vapour)	ACGIH
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
Kerosine (petroleum); Straight run kerosine	8008-20-6	TWA	200 mg/m3 (total hydrocarbon vapor)	CA BC OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
Fuels, diesel; Gasoil — unspecified	68334-30-5	TWA	100 mg/m3 (total hydrocarbons)	CA AB OEL
		TWA (Va-	100 mg/m3	CA BC OEL

		pour and inhalable aerosols)	(total hydrocarbons)	
		TWA (Inhalable fraction and vapor)	100 mg/m3 (total hydrocarbons)	ACGIH

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Concentration in air determines protection needed.
Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Filter type : organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection
Material : neoprene, nitrile, polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Remarks : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eye protection : Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Protective measures : Wash contaminated clothing before re-use.

Hygiene measures : Remove and wash contaminated clothing and gloves, including the inside, before re-use.
Wash face, hands and any exposed skin thoroughly after handling.

SAFETY DATA SHEET

DIESEL FUEL

000003000395

Version 6.0 | Revision Date 2021/02/08 | Print Date 2021/02/08

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Bright oily liquid.
Colour	:	Clear to yellow (This product may be dyed red for taxation purposes)
Odour	:	Mild petroleum oil like.
Odour Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	150 - 371 °C (302 - 700 °F)
Decomposition temperature		No data available
Flash point	:	> 40 °C (104 °F) Method: closed cup
Auto-Ignition Temperature	:	204 °C (399 °F)
Evaporation rate	:	No data available
Flammability	:	Flammable in presence of open flames, sparks and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite.
Upper explosion limit	:	6 %(V)
Lower explosion limit	:	0.7 %(V)
Vapour pressure	:	7.5 mmHg (20 °C / 68 °F)
Relative vapour density	:	4.5
Relative density	:	0.8 - 0.88
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	1.3 - 4.1 cSt (40 °C / 104 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable at normal ambient temperature and pressure.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents and acids.
Hazardous decomposition products	:	May release COx, NOx, SOx, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
Eye contact
Ingestion
Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Acute toxicity estimate: 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method Assessment: The component/mixture is moderately toxic after short term inhalation. Remarks: Harmful if inhaled.
Acute dermal toxicity	:	Assessment: The substance or mixture has no acute dermal toxicity

Components:

Kerosine (petroleum), hydrodesulfurized; Kerosine — unspecified:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg.
Acute inhalation toxicity	:	LC50 (Rat): > 5.2 mg/l Exposure time: 4 hrs Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg.

Kerosine (petroleum); Straight run kerosine:

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg.
Acute inhalation toxicity	:	LC50 (Rat): > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg.

Fuels, diesel; Gasoil — unspecified:

Acute oral toxicity : LD50 (Rat): 7,500 mg/kg.

Acute inhalation toxicity : LC50 (Rat): 4.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Mouse): 24,500 mg/kg.

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Germ cell mutagenicity- Assessment	Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Carcinogenicity - Assessment	Suspected of causing cancer.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment	Based on available data, the classification criteria are not met.

STOT - single exposure

Product:

Target Organs: Central nervous system
Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

Target Organs: Liver, thymus, Bone
Remarks: May cause damage to organs through prolonged or repeated exposure.

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae	:	Remarks: No data available
Toxicity to bacteria	:	Remarks: No data available

Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed disposal company. Waste must be classified and labelled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging	:	Dispose of product residue in accordance with the instructions of the person responsible for waste disposal. Contact local or business unit authorities for guidance on disposal of product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1202
Proper shipping name	:	Diesel fuel
Class	:	3
Packing group	:	III
Labels	:	Class 3 - Flammable Liquid
Packing instruction (cargo aircraft)	:	366

IMDG-Code

UN number	:	UN 1202
Proper shipping name	:	DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

National Regulations

TDG

UN number	:	UN 1202
Proper shipping name	:	DIESEL FUEL
Class	:	3
Packing group	:	III
Labels	:	3
ERG Code	:	128
Marine pollutant	:	yes

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this product are reported in the following inventories:

DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of SDS	:	Internet: www.petro-canada.ca/msds

SAFETY DATA SHEET

DIESEL FUEL

000003000395

Version 6.0 | Revision Date 2021/02/08 | Print Date 2021/02/08

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228
For Product Safety Information: 1 905-804-4752

Prepared by : Product Safety

Revision Date : 2021/02/08

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

APPENDIX D: 2021 MSDS SHEETS FOR GASOLINE STORED IN EUREKA'S STORAGE TANK SYSTEM

A MSDS binder, containing MSDS sheets on all hazardous substances present at Eureka, is located in the front of the vestibule of the main complex. Each building has a MSDS binder containing MSDS sheets for substances contained in that building.

SAFETY DATA SHEET

GASOLINE, UNLEADED

000003000644

Version 3.1 | Revision Date 2021/02/18 | Print Date 2021/02/18

SECTION 1. IDENTIFICATION

Product name	:	GASOLINE, UNLEADED
Synonyms	:	TN-PE-TM15-X00-1499; LVB87, Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, Summer-Gas, Supreme, SuperClean, SuperClean WinterGas, Regu-larClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blend-stock for Oxygenate Blending, Conventional Gasoline, RUL, MUL, SUL, PUL.
Product code	:	100127, 100126, 101823, 100507, 101811, 101814, 100141, 101813, 101810, 101812, 100063, 101822, 100138, 101821, 100064, 101820, 101819, 100506, 101818, 101816, 101817, 100488
Manufacturer or supplier's details		Petro-Canada P.O. Box 2844, 150 - 6th Avenue South-West Calgary Alberta T2P 3E3 Canada, Telephone: 1-866-786-2671
Emergency telephone num-ber		CHEMTREC: 1-800-424-9300 (toll free) or +1 703-527-3887; Suncor Energy: +1 403-296-3000

Recommended use of the chemical and restrictions on use

Recommended use	:	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recrea-tional vehicles.
Prepared by	:	Product Safety

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	Clear liquid.
Colour	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	Gasoline

GHS Classification

Flammable liquids	:	Category 1
Skin irritation	:	Category 2
Germ cell mutagenicity	:	Category 1B

Carcinogenicity	:	Category 1A
Reproductive toxicity	:	Category 2
Specific target organ toxicity - single exposure	:	Category 3 (Central nervous system)
Specific target organ toxicity - repeated exposure	:	Category 1
Aspiration hazard	:	Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements : **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.

If skin irritation occurs: Get medical advice/ attention.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Primary Routes of Entry : Eye contact
Ingestion
Inhalation
Skin contact

Aggravated Medical Condition : None known.

Other hazards

None known.

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
ACGIH	Confirmed human carcinogen	
	Benzene	71-43-2
	Confirmed animal carcinogen with unknown relevance to humans	
	Gasoline	86290-81-5
	Ethanol	64-17-5

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration
Gasoline; Low boiling point naphtha -unspecified	86290-81-5	95 - 100 %
toluene	108-88-3	1 - 40 %

benzene	71-43-2	0.5 - 1.5 %
ethanol	64-17-5	0.1 - 0.3 %

All above concentrations are in percent by weight.

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move to fresh air. Artificial respiration and/or oxygen may be necessary. Seek medical advice.
In case of skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Seek medical advice.
In case of eye contact	:	Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
If swallowed	:	Rinse mouth with water. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Seek medical advice.
Most important symptoms and effects, both acute and delayed	:	Inhalation may cause central nervous system effects. Symptoms and signs include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Chronic exposure to benzene may result in increased risk of leukemia and other blood disorders.
Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical Carbon dioxide (CO2) Water fog. Foam
Unsuitable extinguishing media	:	Do NOT use water jet.
Specific hazards during firefighting	:	Cool closed containers exposed to fire with water spray.
Hazardous combustion products	:	Carbon oxides (CO, CO2), nitrogen oxides (NOx), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.
Further information	:	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment	:	Wear self-contained breathing apparatus and full protective

for firefighters	wear. Wear a positive-pressure supplied-air respirator with full face-piece.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	For personal protection see section 8. Ensure adequate ventilation. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	:	If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Soak up with inert absorbent material. Non-sparking tools should be used. Ensure adequate ventilation. Contact the proper local authorities.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Use only with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Avoid contact with skin, eyes and clothing. Do not ingest. Keep away from heat and sources of ignition. Keep container closed when not in use.
Conditions for safe storage	:	Store in original container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
toluene	108-88-3	TWA	50 ppm 188 mg/m3	CA AB OEL
		TWA	20 ppm	CA BC OEL

		TWAEV	50 ppm 188 mg/m3	CA QC OEL
		TWA	20 ppm	ACGIH
benzene	71-43-2	TWA	0.5 ppm 1.6 mg/m3	CA AB OEL
		STEL	2.5 ppm 8 mg/m3	CA AB OEL
		TWA	0.5 ppm	CA BC OEL
		STEL	2.5 ppm	CA BC OEL
		TWA	0.5 ppm	CA ON OEL
		STEL	2.5 ppm	CA ON OEL
		TWAEV	1 ppm 3 mg/m3	CA QC OEL
		STEV	5 ppm 15.5 mg/m3	CA QC OEL
		TWA	0.5 ppm	ACGIH
		STEL	2.5 ppm	ACGIH
Gasoline; Low boiling point naphtha -unspecified	86290-81-5	TWA	300 ppm	CA AB OEL
		STEL	500 ppm	CA AB OEL
		TWA	300 ppm	CA BC OEL
		STEL	500 ppm	CA BC OEL
		TWA	300 ppm	ACGIH
		STEL	500 ppm	ACGIH
ethanol	64-17-5	TWA	1,000 ppm 1,880 mg/m3	CA AB OEL
		STEL	1,000 ppm	CA BC OEL
		TWAEV	1,000 ppm 1,880 mg/m3	CA QC OEL
		STEL	1,000 ppm	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Toluene	108-88-3	Toluene	In blood	Prior to last shift of work-week	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI

Engineering measures : Adequate ventilation to ensure that Occupational Exposure Limits are not exceeded.
Use only in well-ventilated areas.
Ensure that eyewash station and safety shower are proximal to the work-station location.

Personal protective equipment

Respiratory protection : Concentration in air determines protection needed.

		Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Filter type	:	A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection		
Material	:	polyvinyl alcohol (PVA), Viton(R). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.
Remarks	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Eye protection	:	Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	:	Wash contaminated clothing before re-use.
Hygiene measures	:	Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash face, hands and any exposed skin thoroughly after handling.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear liquid.
Colour	:	Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.
Odour	:	Gasoline
Odour Threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Boiling point/boiling range	:	25 - 225 °C (77 - 437 °F)

Decomposition temperature		No data available
Flash point	:	-50 - -38 °C (-58 - -36 °F) Method: Tagliabue.
Auto-Ignition Temperature	:	257 °C (495 °F)
Evaporation rate	:	No data available
Flammability	:	Extremely flammable in presence of open flames, sparks, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.
Upper explosion limit	:	7.6 %(V)
Lower explosion limit	:	1.3 %(V)
Vapour pressure	:	< 802.5 mmHg (20 °C / 68 °F)
Relative vapour density	:	3
Relative density	:	0.685 - 0.8
Solubility(ies)		
Water solubility	:	insoluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Hazardous polymerisation does not occur.
Conditions to avoid	:	Extremes of temperature and direct sunlight.
Incompatible materials	:	Reactive with oxidising agents, acids and interhalogens.
Hazardous decomposition products	:	May release COx, NOx, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye contact

Ingestion

Inhalation
Skin contact

Acute toxicity

Product:

Acute oral toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity	:	Remarks: Based on available data, the classification criteria are not met.
Acute dermal toxicity	:	Remarks: Based on available data, the classification criteria are not met.

Components:

Gasoline; Low boiling point naphtha -unspecified:

Acute oral toxicity	:	LD50 (Rat): 13,600 mg/kg,
Acute dermal toxicity	:	LD50 (Rabbit): > 3,750 mg/kg,

toluene:

Acute oral toxicity	:	LD50 (Rat): 5,580 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): > 20 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	:	LD50 (Rabbit): 12,125 mg/kg,

benzene:

Acute oral toxicity	:	LD50 (Rat): 2,990 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): 13700 ppm Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	:	LD50 (Rabbit): > 8,240 mg/kg,

ethanol:

Acute oral toxicity	:	LD50 (Rat): 7,060 mg/kg,
Acute inhalation toxicity	:	LC50 (Rat): > 32380 ppm Exposure time: 4 h Test atmosphere: vapour

Skin corrosion/irritation

Product:

Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Remarks: Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Product:

Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Product:

Germ cell mutagenicity- Assessment	May cause genetic defects.

Carcinogenicity

Product:

Carcinogenicity - Assessment	May cause cancer.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment	Suspected of damaging fertility or the unborn child.

STOT - single exposure

Product:

Remarks: May cause drowsiness or dizziness.

STOT - repeated exposure

Product:

Remarks: Causes damage to organs through prolonged or repeated exposure.

No data available

Aspiration toxicity

Product:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish :

Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available
Toxicity to algae	:	Remarks: No data available
Toxicity to bacteria	:	Remarks: No data available

Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	The product should not be allowed to enter drains, water courses or the soil. Offer surplus and non-recyclable solutions to a licensed disposal company. Waste must be classified and labelled prior to recycling or disposal. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of product residue in accordance with the instructions of the person responsible for waste disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No.	:	UN 1203
Proper shipping name	:	Gasoline
Class	:	3
Packing group	:	II
Labels	:	Class 3 - Flammable Liquid
Packing instruction (cargo aircraft)	:	364

IMDG-Code

UN number	:	UN 1203
Proper shipping name	:	GASOLINE

Class	:	3
Packing group	:	II
Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

National Regulations

TDG

UN number	:	UN 1203
Proper shipping name	:	GASOLINE
Class	:	3
Packing group	:	II
Labels	:	3
ERG Code	:	128
Marine pollutant	:	no

SECTION 15. REGULATORY INFORMATION

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all of the information required by the HPR.

The components of this product are reported in the following inventories:

DSL	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

For Copy of SDS	:	Internet: www.petro-canada.ca/msds Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228 For Product Safety Information: 1 905-804-4752
Prepared by	:	Product Safety
Revision Date	:	2021/02/18

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

APPENDIX E: EUREKA'S DIESEL FUEL SYSTEM

Prior to the annual arrival of the CCG ice breaker, any remaining diesel in the 770,000 L tank is pumped to one or more of the 9 x 60,000 L tanks. Diesel fuel is then conveyed to the tank farm from the CCG ice breaker via the piping system to the 770,000 L tank. If there is still excess capacity in the 60,000 L tanks, diesel will be pumped into those tanks from the 770,000 tank and the 770,000 L tank will then be filled to tank capacity. Approximately 500,000 - 900,000 L of diesel are conveyed to Eureka's tank farm each year.

Only the 60,000 L tanks deliver fuel. When a 60,000 L tank is emptied, it is filled by gravity feed from the 770,000 L tank. From the 60,000 L tanks, it travels to:

1) Two tanks at the generator building (via pipeline; and
2) The diesel dispenser (just south of the tank farm) where it is pumped into the portable tank, which is employed to transport diesel to the 4 x 9,000 L tanks and to Fort Eureka's & Skull Point's 20,000 L fuel tanks.

Due to the geographic location of Eureka HAWS and the restrictions that could be caused by severe ice seasons, Eureka always stores diesel fuel for the generator for two years with the hope that, if the ice breaker cannot bring fuel one year, it will be able to do so the following year. Yearly consumption of diesel for the generators and other various uses throughout the station ranges from 500,000 to 700,000 L.

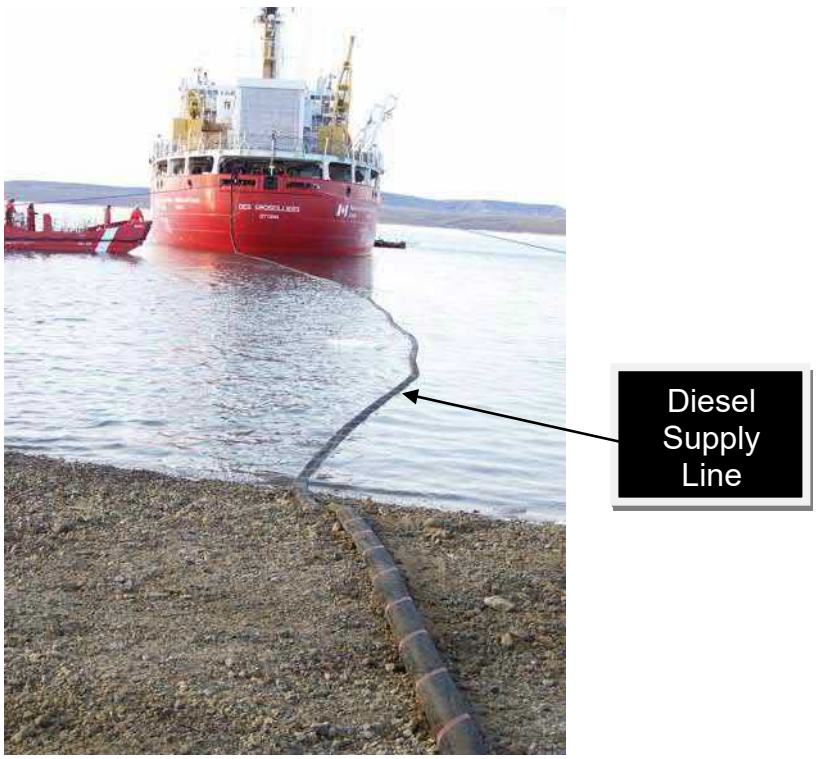


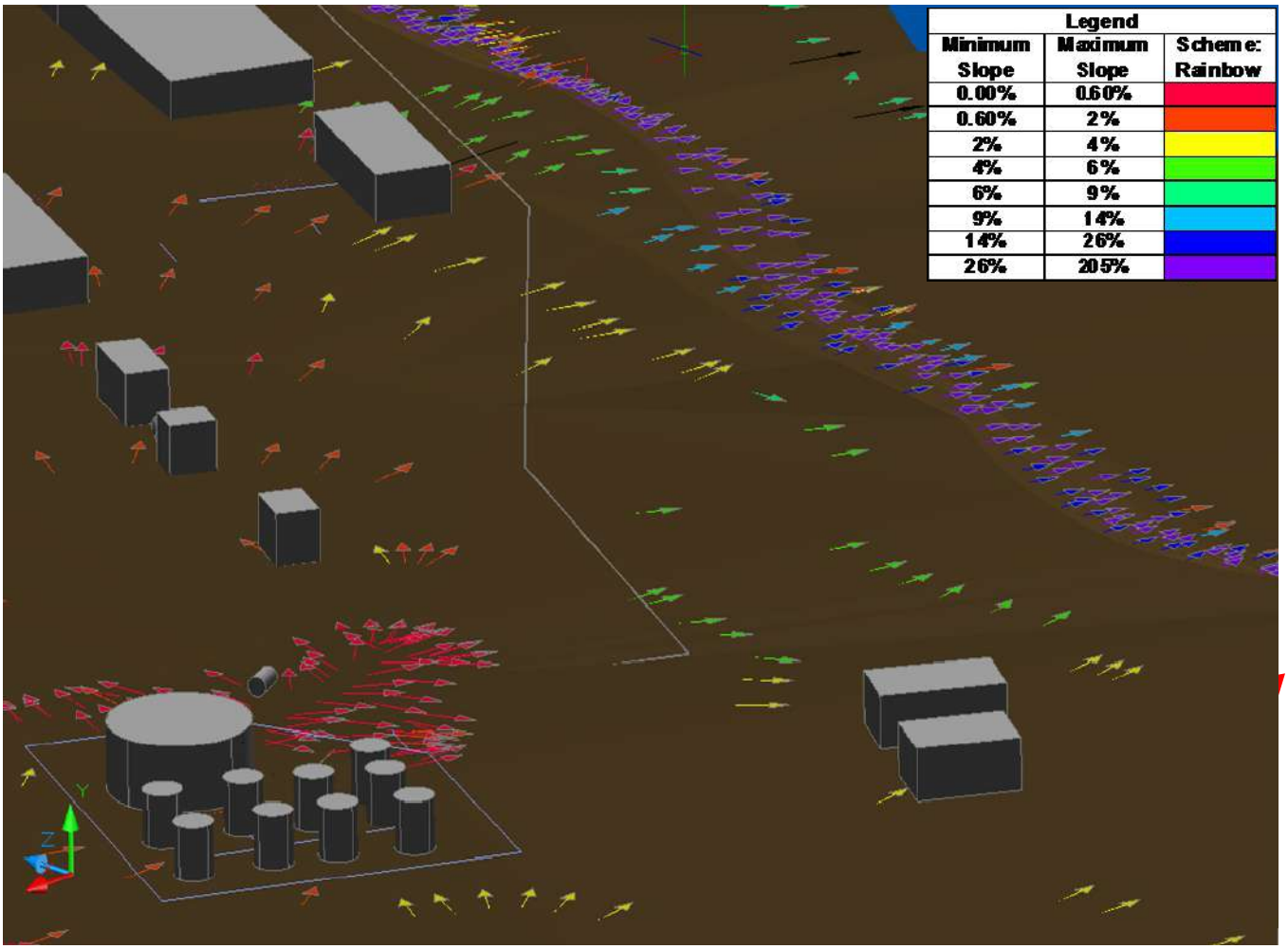
Figure 10: Supply Ship Delivering Diesel Fuel to Eureka

APPENDIX F: EUREKA'S HAWS GASOLINE FUEL SYSTEM

Ten to fifteen barrels of gasoline are brought to Eureka HAWS on the sea-lift each year. The barrels are lifted by a crane on the ship onto a barge which delivers the barrels to the shore (Figure 4). From the barge they are placed on land by a crane located on shore. From the shore, the barrels are conveyed by a loader to the Barrel Storage Area east of the buildings (see Figure 2 and Appendix M) until they are needed to refill the 2,273 L tank. The barrels are brought to the tank by a loader and the contained gasoline is pumped into the gasoline tank.

Figure 11: Transfer of drummed petroleum products to Eureka HAWS

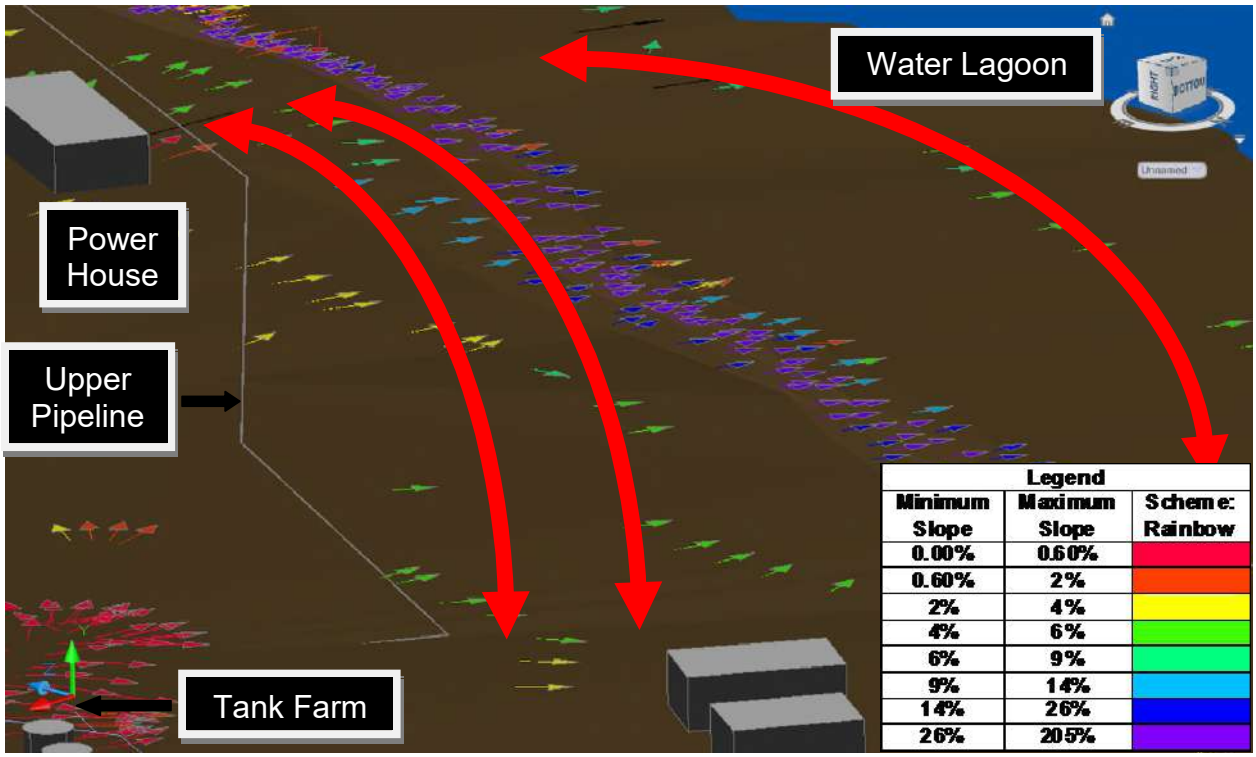
APPENDIX G: TANK FARM: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from tank farm, diesel dispenser, gasoline tank and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching water lagoon
- Distance from tank farm, diesel dispenser and gasoline tank to ridge is ~ 85 M
- Distance from ridge to water lagoon is an additional ~ 30 M

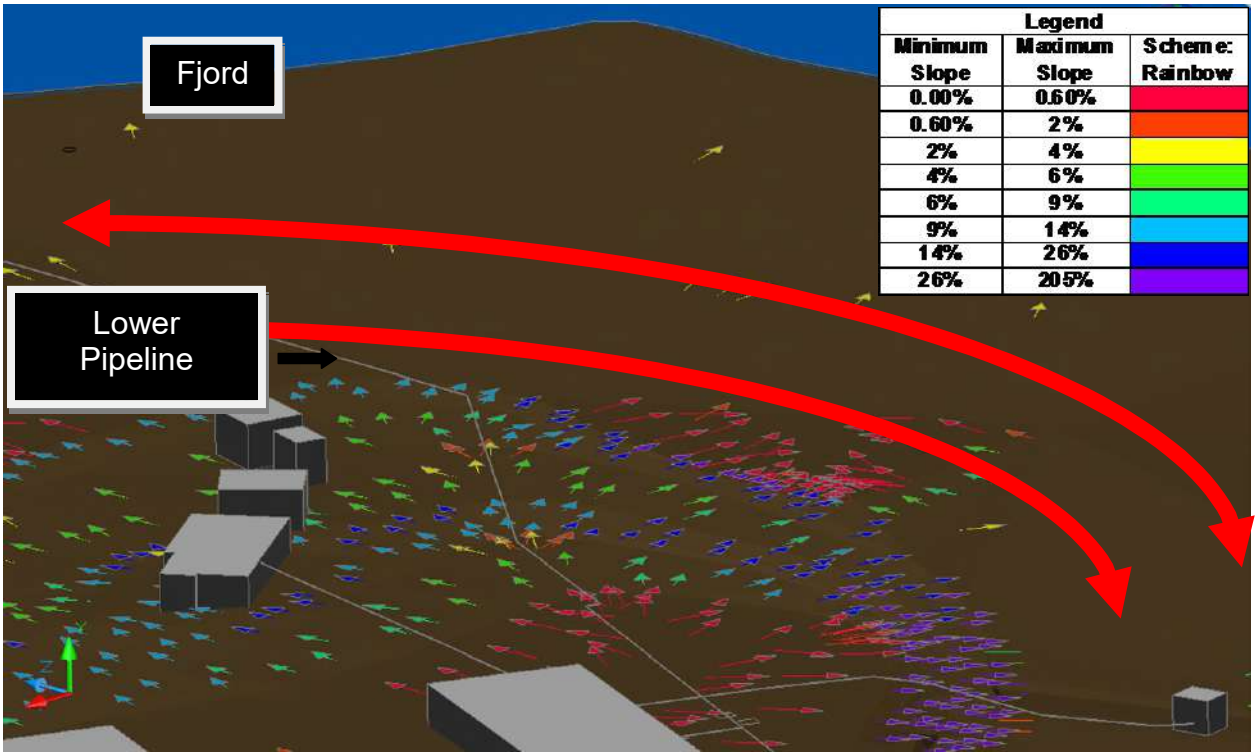
APPENDIX H: NORTH END OF PIPELINE: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from upper end (north end) of pipeline and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching water lagoon
- Distance from ridge to water lagoon is ~ 30 M

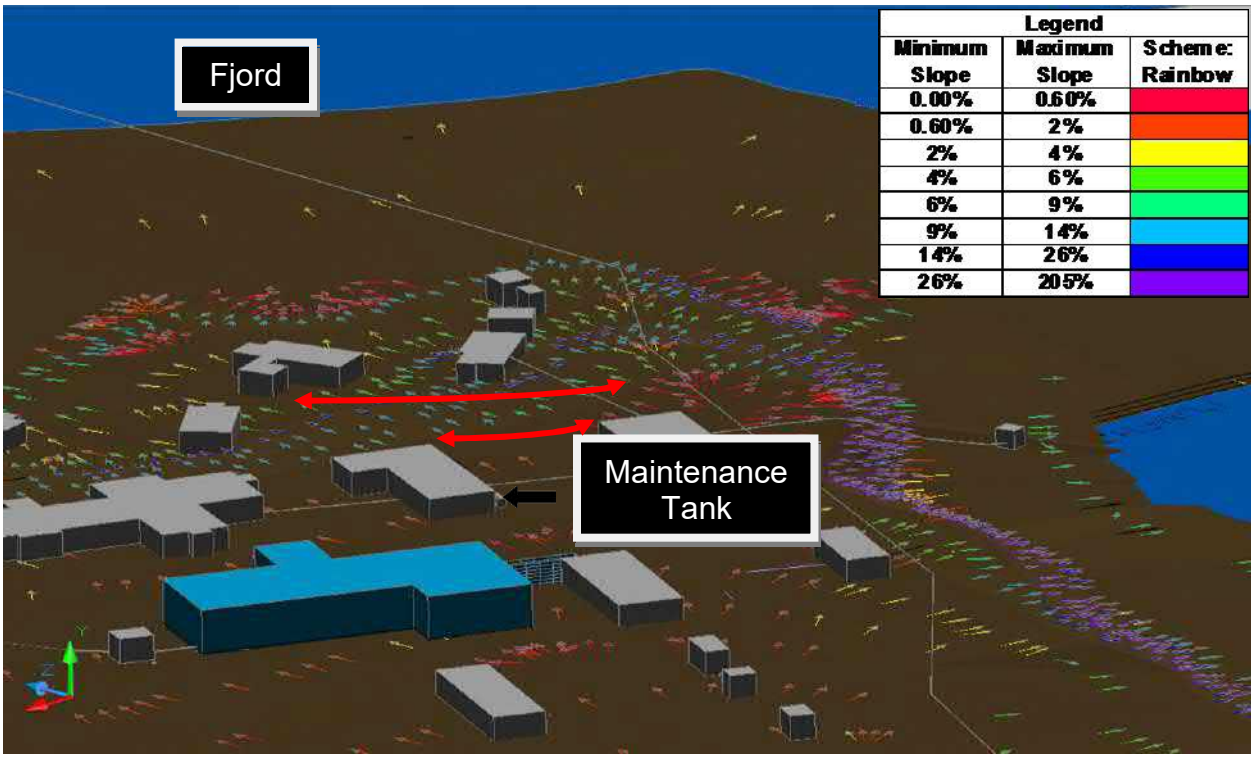
APPENDIX I: SOUTH END OF PIPELINE: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from lower end (south end) of pipeline and possible locations of barriers to prevent contamination of Fjord

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord

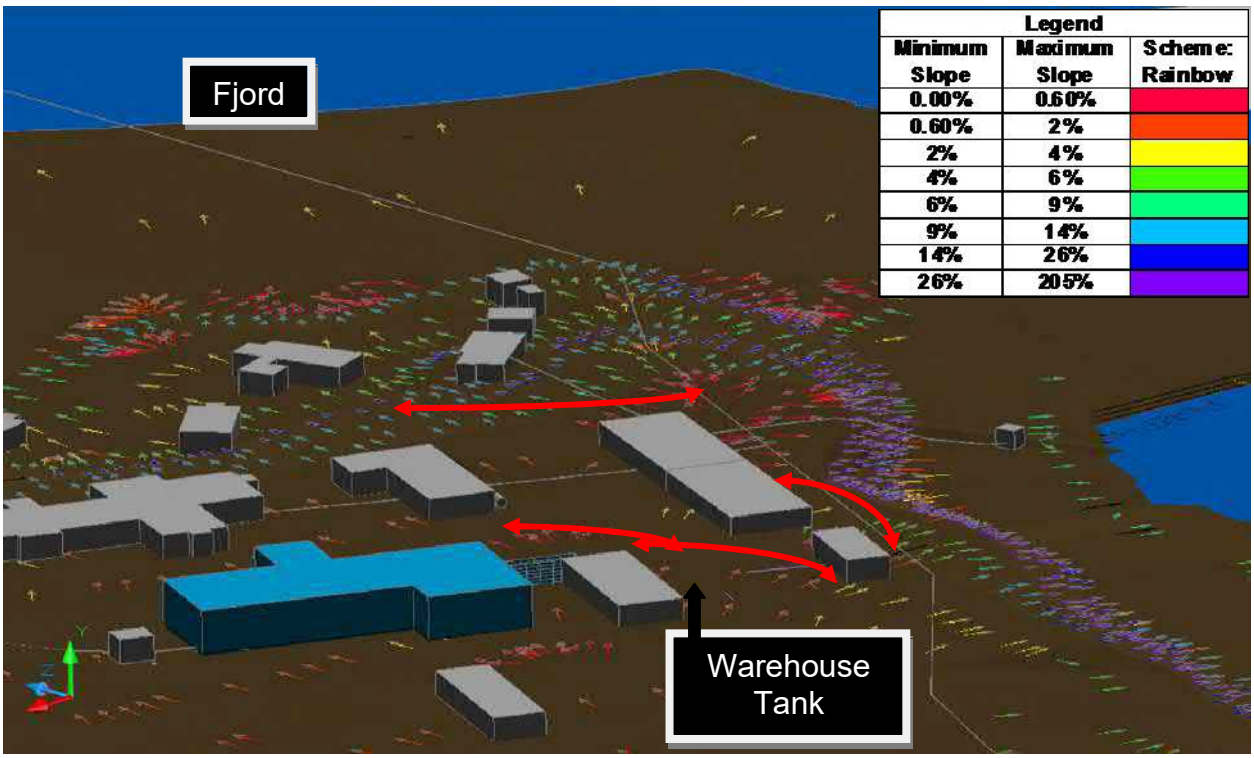
APPENDIX J: MAINTENANCE TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from maintenance tank and possible locations of barriers to prevent contamination of Fjord

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Maintenance Tank to Fjord is ~ 200 M

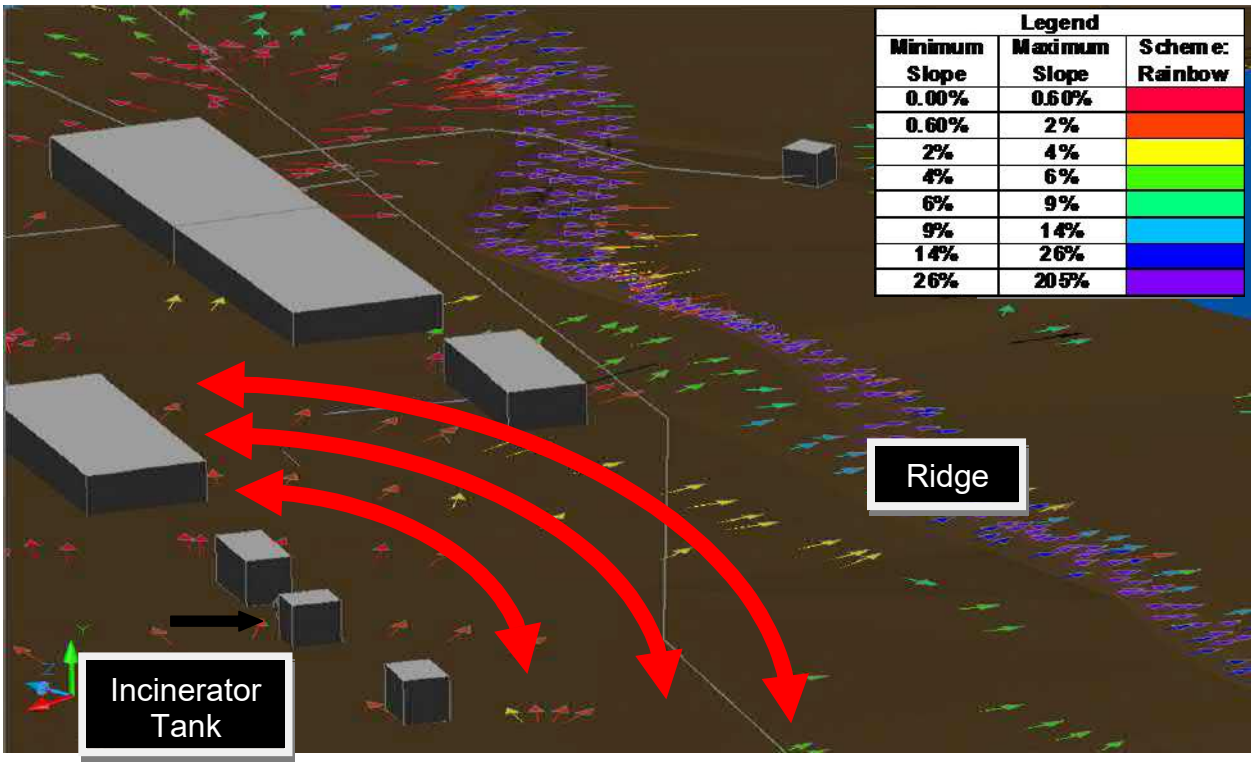
APPENDIX K: WAREHOUSE TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from warehouse tank and possible locations of barriers to prevent contamination of Fjord.

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Warehouse Tank to Fjord is ~ 250 M

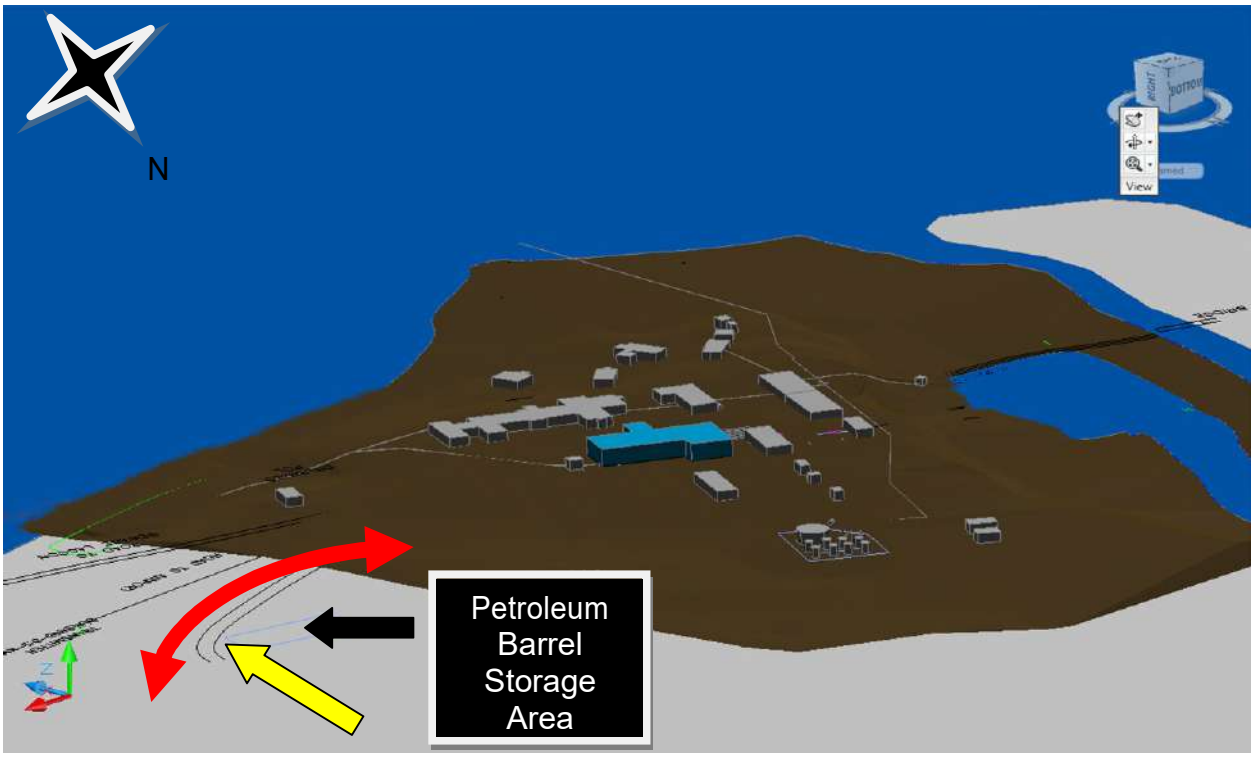
APPENDIX L: INCINERATOR TANK: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from incinerator tank and possible locations of barriers to prevent contamination of water lagoon

- Individual arrows indicate direction of flow of petroleum spill
- Red lines with arrows indicate possible locations of barriers (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord
- Distance from Incinerator Tank to Water Lagoon is ~ 120 M

APPENDIX M: BARREL STORAGE AREA: DIRECTION OF POTENTIAL DISCHARGE



Direction of potential discharge from barrel storage area and possible locations of barriers to prevent contamination of water lagoon

- Yellow arrow indicates direction of flow of petroleum spill
- Red line with arrows indicate possible location of barrier (piled snow, booms, etc.) to prevent petroleum fluid from reaching the Fjord

APPENDIX O: SPILL RESPONSE RESOURCES & EQUIPMENT

The following is a list of Environment and Climate Change Canada equipment on site at Eureka:

1) 2 - 50’ x 24” Containment booms
2) 2 - 5/8” x 100’ Tow Lines
3) 5 - Sorbent Booms (not packages)
4) 5 - Sorbent Rolls
5) 1 - 1000 gallon Port-A-Tank
6) 4 - Hollow Back Round Point Shovels
7) 4 - Rakes
8) 1 - 10 lb. Sledge Hammer
9) 1 - Fire Axe
10) 100 - heavy duty oil spill garbage bags
11) 2 - Portable Honda Generators
12) 6 - portable/mobile radios (167.7 MHz)
13) 1 - Air/Ground base Station (122.8 MHz & 121.5 MHz)
14) 4 - Fire Extinguishers
15) 1 - CAT IT28B Loader
16) 1 - Case 721D Loader
17) 1 - Champion grader
18) 1 - D7 Bulldozer

The following could be provided in case of emergency by the Canadian Coast Guard:

1) 1 - Canadian Coast Guard Motorized Landing Craft (LCM)
2) 1 - Canadian Coast Guard Dumb Barge

The following is a list of personal protective equipment (PPE) on site:

1) 10 - goggles
2) 10 - pair nitrile/natural rubber gloves
3) 10 - pair Tyvek Coveralls
4) 6 - set 3 piece rain suits
5) 6 - pair rubber safety boots

APPENDIX P: SPILL REPORTING FORMS

Environnement Canada Environment Canada

Spill Report

Internal use only

All releases of petroleum product or allied product MUST be reported by telephone as soon as possible.

This form should be completed by the owner, operator, or the person responsible for managing the response.

Date of Incident :	**Time of Incident:**	**EC Property:**
_____	_____	_____
Weather Conditions:		
_____		

Owner Name:_____ **Division and Direction:** _____

Telephone Number: _____

Operator Name:_____ **Telephone Number:** _____

Reported by:_____ **Signature:**_____

EC Tank Registration Number, if applicable:	EC-_____	EC-_____
Type of Fuel:	_____	
Source of Spill:	Storage Tank ☐ Barrel/Drums ☐ Pumping Operation ☐	Vehicle ☐ Other: _____
How much fuel spilled?	Litres:_____	**If more than 100L, this report SHALL be faxed or scanned to the federal authority with 48 hours.**

Property Management Division, ACEMD

Canada

Environnement Canada | Environment Canada

Spill Report

Internal use only

Description of the spill:	Location of spill:	_____
		_____
	Surface or approximate area affected:	_____
	Is the spill contained?	YES ☐ NO ☐
Release Site Description:	Surface at Site:	☐ Paved ☐ Gravel ☐ Vegetation ☐ Concrete Surface
What waterways are in the vicinity of the product release (if applicable)?	_____	
	_____	

Did you contact the appropriate federal authority spill action centres?[1]	YES ☐ NO ☐	Which centre did you contact? _____
Who at EC spill center did you talk to?	Name: _____	Function: _____
	Date: _____	
Incident Number:	_____	
Was a 3rd party property affected by the release?	YES ☐ NO ☐	If yes, who: _____

[1] Refer to PDF Canadian Environmental Emergencies Notification System

Property Management Division, ACEMD

Canada

Environnement Canada | Environment Canada

Spill Report

Internal use only

What mitigating measures did you take?	☐ Stop the flow of product ☐ Turned off pumping unit (if applicable) or close manifold valve ☐ Eliminated all sources of ignition ☐ Secured the area ☐ Put on goggles and petroleum resistant gloves and boots ☐ Used absorbents located in storage units to contain and clean up all product ☐ Placed all absorbents in metal drums for disposal ☐ Transport drums to a secure area within facility for temporary storage ☐ Made arrangements to dispose of contaminated materials at an authorized disposal site Other:_____		
Is it possible to keep the system running?	YES ☐	NO ☐	
Is someone supposed to come and fix anything?	YES ☐	NO ☐	If yes, who: _____ _____ _____
The organizations that were notified and / or are involved as well as other relevant information:	_____ _____ _____ _____ _____		

Property Management Division, ACEMD

Canada

Environment and Climate Change Canada | Environnement et Changement climatique Canada

Northwest Territories | Nunavut | Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # TO THE ORIGINAL SPILL REPORT	
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION		
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION		
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER	
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS			
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM / TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION / ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION: STATION OPERATOR	EMPLOYER	LOCATION CALLED: YELLOWKNIFE, NT / REPORT LINE NUMBER: (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ LA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

APPENDIX Q: MONTHLY VISUAL INSPECTION CHECKLISTS FOR EUREKA'S TANK SYSTEMS

The use of digital cameras, it is also a good idea to take some high definition digital photographs of inspection results. The photographs can be taken from consistent perspective each month to clearly document how the facility changes over time. Remember the old saying, "a picture is worth a thousand words".

Monthly FSTS Inspection Checklist
Enviro Tanks
District 1, Property Management Division

Internal system number and/or name:_____

Facility: Eureka **ECCC Identification #:**

Date(Month/Day/Year):_____ **Inspected by:**_____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	□ Yes □ No	
Are the labels in good condition? (look for WHMIS, TDG, ECCC TAG) *(WHMIS, TDG, NFCC)*	□ Yes □ No	
Is the emergency spill kit complete? *(NFCC, BP)*	□ Yes □ No	
Physical Protection		

Is the tank damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	□ Yes □ No	
Is there collision protection and fencing in place around the tank, and are they in good condition? (look for bollards, etc.) *(NFCC, B139)*	□ Yes □ No □ N/A	
Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Petroleum product pump □ N/A		
Are there any leaks on pump, pipes, belts or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No □ Don't know	
Devices		
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves (anti-siphon valve, power cut-off valve, recovery valve, drainage valve) working properly? *(NFCC, B139)*	□ Yes □ No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	□ Yes □ No □ None	
Piping		
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? *(NFCC, B139)*	□ Yes □ No	

Summary of leaks		
Has there been a leak alarm (if applicable) or signs of leaks in then interstitial space since the last inspection for double walled tanks? *(BP)*	□ Yes □ No □ N/A	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** □ Yes □ No ***Unfeasible*** □		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Tank Farm System
District 1, Property Management Division

While walking the tank farm, take note of signs of overfill, corrosion, recent repairs that were not apparent by records or discussion. Look for stains on steel where leak may be occurring, check valve function and nozzle welds, check associated piping, check foundation for wash-out/deterioration.

Internal system number and/or name:_____

Facility: Eureka **ECCC Identification #: EC-00001218**

Date(Month/Day/Year):_____ **Inspected by:**_____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

➢ **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's shell, foundation, (Side, top) and roof in good condition? (look for deterioration, unstable foundation, of welds, plates, and appurtenances) *(NFCC & API)*	□ Yes □ No	
Are the labels in good condition? (look for WHMIS, TDG, ECCC TAG) (*WHMIS, TDG, NFCC*)	□ Yes □ No	
Is the emergency spill kit complete? *(NFCC, BP)*	□ Yes □ No	
Protection		
Are the tanks damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	□ Yes □ No	

Are the collision protections in good condition? (Look for bollards, door-gate etc.) *(NFCC, B139)*	□ Yes □ No	
Is the exterior coating in good condition, both shell and roof? (Look for lack of corrosion protection) (*API*)	□ Yes □ No	
Petroleum product pump □ N/A		
If applicable, are there any leaks on pipes or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
If applicable, is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds around yellow tanks inside generator building.) *(BP)*	□ Yes □ No □ Don't know	
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves and flanges working properly? *(NFCC, B139)*	□ Yes □ No	
Piping		
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? (Look at the vents of the Yellow tanks) *(NFCC, B139)*	□ Yes □ No □ Not accessible	
Monitoring leaks		
Are there any petroleum products or water in the containment enclosure for tanks with secondary containment? (Check at the tank Farm, check secondary	□ Yes □ No	

containment integrity) *(CEPA)*		
Are the drain valve locked to prevent leak? (*API)*	□ Yes □ No	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** □ Yes □ No		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Gasoline Dispenser
District 1, Property Management Division

Internal system number and/or name:_____

Facility: Eureka **EC Identification #:**

Date(Month/Day/Year):_____ **Inspected by:** _____

Fuel Type: Gasoline

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

➢ **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	□ Yes □ No	
Are the labels in good condition? (look for WHMIS, TDG, ECCC TAG) *(WHMIS, TDG, NFCC)*	□ Yes □ No	
Is the emergency spill kit complete? *(NFCC, BP)*	□ Yes □ No	
Physical Protection		
Is there any evidence of damage to any of the tank system equipment? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	□ Yes □ No	

Is collision protection is in good order? (look for bollards, etc.) *(NFCC, B139)*	□ Yes □ No	
Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Pump, devices and dispenser		
Are there any leaks on Pump and pipes of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No	
Check suction pump operation; Is there any leakage at the fuel pump: fittings, belts or fuel filters? *(NFCC, B139)*	□ Yes □ No	
Is the nozzle without cuts and tears?	□ Yes □ No	
Is the dispenser hose without cracks or crimps?	□ Yes □ No	
Piping		
Is there anything broken on any of the connections or the piping? (look at supply, fill and vent pipes) *(BP)*	□ Yes □ No	
Are there any signs of leaks on any aboveground pipes, elbows, or pipe joints? *(CEPA, NFCC, B139)*	□ Yes □ No	
Is the tank vent clear of obstructions? *(NFCC, B139)*	□ Yes □ No	
Leak Summary		

Was there any evidence of a leak in the interstitial space of the double walled tank since the last inspection? (look at the vacuum gauge)	Yes No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	Yes No	
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

Monthly FSTS Inspection Checklist
Mobile Tank
District 1, Property Management Division

Internal system number and/or name:_____

Facility: Eureka **ECCC Identification #: N/A**

Date(Month/Day/Year):_____ **Inspected by:**_____

Fuel Type: Diesel

1. READ CAREFULLY THE CHECKLIST PRIOR TO THE INSPECTION
2. ALWAYS TAKE A PHOTO OF ANY DAMAGES OR PROBLEMS
3. ALWAYS DOCUMENT ANY PROBLEMS AND REPAIR THEM

- **KEEP CHECKLIST ON FILE AT THE SITE**

	Y or N	Comments
General Conditions		
Are the tank's support, foundation, Walls (side, top, and underneath) in good condition? (look for lack of corrosion protection and its deterioration, unstable foundation, etc) *(NFCC, B139)*	□ Yes □ No	
Are the labels in good condition? (look for WHMIS, TDG, EC TAG) *(WHMIS, TDG, NFCC)*	□ Yes □ No	
Is the emergency spill kit complete at the storage mobile tank area? *(NFCC, BP)*	□ Yes □ No	
Physical Protection		
Is the tank damaged? (look for cracks, brittles, fractures, etc) *(CEPA, NFCC, B139)*	□ Yes □ No	

Is the area clear of debris? (Nothing should get in touch with the tank and piping) (BP)	□ Yes □ No	
Dispenser		
Are there any leaks on pump, pipes, belts or filters of the petroleum product? *(CEPA, NFCC)*	□ Yes □ No	
Is the petroleum product pump properly working and does it pump product smoothly without making any unusual sounds? (Check mainly for unusual sounds) *(BP)*	□ Yes □ No □ Don't know	
Is the nozzle without cuts and tears?	□ Yes □ No	
Is the dispenser hose without cracks or crimps?	□ Yes □ No	
Devices		
Is the product shut-off device working properly? *(NFCC)*	□ Yes □ No	
Are the valves (anti-siphon valve, power cut-off valve, recovery valve, drainage valve) working properly? *(NFCC, B139)*	□ Yes □ No	
Is the product level alarm warning system (visual/auditory) working properly? *(NFCC, CCME)*	□ Yes □ No □ None	
Piping		
Are there any signs of leaks on hose or venting port? *(CEPA, NFCC, B139)*	□ Yes □ No □ N/A	
Is the tank vent clear? *(NFCC, B139)*	□ Yes □ No	

Summary of leaks		
Has there been a leak alarm (if applicable) or signs of leaks in then interstitial space since the last inspection for double walled tanks? *(BP)*	□ Yes □ No □ N/A	
Inventory reconciliation and tank bottom water *(CEPA, NFCC)* ***Complete the form in Appendix L-2*** ***Appendix L-2 completed?*** □ Yes □ No ***Unfeasible*** □		
Overall Conditions		
Is the system working properly? *(CEPA, NFCC, B139)*	□ Yes □ No	
Are there any measures that need to be implemented? *(BP)*	□ Yes □ No	*If so, what are they?*

L-2

Inventory Reconciliation Form		
Federal registration number (ECCC):		
Tank location:		
Date:		
Name of person responsible for reconciliation:		
A	Date of last reconciliation (manual immersion):	
B	Date of current reconciliation:	
C	Number of days since last reconciliation: (**B** – **A** = **C**)	
D	Average daily consumption rate (litres): *Note: This data is determined using counter reading records (precise average) or product delivery record histories (approximate average).*	
E	Estimated total consumption (litres): (**D** x **C** = **E**)	
F	Previous immersion reading (cm):	
G	Conversion of immersion reading (**F**) in litres based on the tank's specific conversion chart:	
H	Quantity of product delivered since the last immersion reading (litres):	
I	Current immersion reading (cm):	
J	Conversion of immersion reading (**I**) in litres based on the tank's specific conversion chart:	
K	Difference in volume: (**G** + **H** – **I** = **K**) Note: A negative result indicates a loss of volume; a positive result indicates an increase in volume.	
Does the consumption rate (**E**) match the difference calculated (**K**)? If not, explain:		

Tank bottom water		
Quantity of water measured (cm):	Conversion into litres:	
Quantity of water removed (litres):	Date:	
Company or individual who disposed of the tank bottom water:		
Method and location of water disposal:		

APPENDIX R: CHECKLIST FOR ANNUAL INSPECTION

Environment and Climate Change Canada

Checklist for Yearly Inspection of Fuel Storage Tank Systems

Internal system number and/or name: _____

ECCC Identification number: EC-_____

Date of inspection: _____

Inspected by (company): _____

Inspector's signature: _____

A. Applies to storage tank system locations

Acceptable		Not compliant	Element	Corrective measure
1			Access for emergency and delivery vehicles (15 m turn radius around the location) *(BP)*	
2			Restricted sources of ignition (7.5 m radius) *(NFCC)*	
3			Drainage control in event of spill or emergency *(NFCC)*	

B. Applies to all storage tank systems

Acceptable		Not compliant	Element	Corrective measure
4			Inspect debris and clean the ULC-certified vent. The vent must measure 2 000 mm (diesel) or 3 500 mm (gasoline) in height and located at least 1 200 mm above the surface of the tank and 1 000 mm away from any building openings *(NFCC)*	
5			The ULC label on the emergency tank ventilation (aboveground tanks only), is in good condition *(BP)*	
6			Check the secondary containment for spills or leaks (and repair if necessary) *(CEPA, NFCC)*	
7			Repair any damaged corrosion protection on	

			metallic surfaces *(BP)*	
8			Check the working condition of the vapour- and water-tight fill pipe and its cap *(NFCC)*	
9			Ensure the pump shut-off device is in good working condition *(NFCC)*	
10			The spill containment has a ULC label (max. capacity of 15 litres) and is free of debris *(CEPA, BP)*	
11			There is access to stairs (if the height to reach the product distribution equipment is above 990 mm) *(BP)*	
12			The overfill protection device is in good condition and is labelled *(NFCC, BP)*	
13			Check the tank's secondary containment for any product *(CEPA, NFCC)*	
14			Perform a diagnostic test on the tank's secondary containment control system *(BP)*	
15			Check and calibrate the product level gauge, ensure it has a ULC label *(NFCC, B139, BP)*	
16			Ensure the aboveground tank support framework (at least 150 mm above the ground) is in good condition *(BP)*	
17			Annual precision leak detection tests for storage tank systems *(CEPA, NFCC, B139)*	
18			Check and record : the tank bottom water by during manual immersions, measure using a dip stick covered with a water-reactive paste *(CEPA)*	

C. Refuelling device				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
19			Verify that the refuelling pipe and filter (bearing a ULC label, to be replaced once a year) are secure and in good condition *(NFCC, BP)*	
20			Verify that the automatic shut-off nozzle (bearing a ULC label) is in good condition *(NFCC)*	
21			Verify that there is an emergency shut-off device at least 2 500 mm away from the refuelling area, is in good condition, and that is properly labelled *(NFCC)*	
22			Examine and update the operational procedures for the petroleum product management system and the shut-off device *(BP) (See EERP section 5.1.1)*	

D. Fixed device supplied with petroleum products (e.g. boiler, cooling pump, generator)				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
23			Verify that there is an emergency pump shut-off device (on the pump, boiler or generator), that it is in good condition, and that it is properly labelled *(B139)*	
24			Inspect and repair potential leaks on transfer pumps *(B139)*	
25			Annual integrity testing on the storage tank as per section	

			15.2 of the Code *(B139)*	
26			Annual test of petroleum product quality as required under the NFCC *(NFCC, C282)*[1]	
27			Inspect and repair all control valves in damaged pipes *(B139)*	

E. Marking and signage for all tanks				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
28			Replace missing or damaged CEPA labels (Identification Tags) on the supply pipe *(CEPA, NFCC)*	
29			Replace missing or damaged TDG plates (for aboveground tanks only) *(BP)*	
30			Regularly inspect attached ULC labels (for aboveground tanks) *(BP)*	
31			Replace missing or damaged “no smoking” and anti-static signs *(NFCC)*	
32			Verify that there are monthly inspection forms and ensure they are legible *(CEPA)*	
33			Replace any missing or damaged pipe labels indicating flow direction *(NFCC, B139)*	

F. Piping for all tank types				
Acceptable		**Not compliant**	**Element**	**Corrective measure**
34			Repair any damaged corrosion protection on metallic surfaces *(BP) (painting)*	
35			The anti-siphon [2]valve is present and in good working order *(B139)*	
36			Check that the locking closure valve works and is in the open position *(NFCC, B139)*	
37			Check that valves bearing ULC/CSA/ASTM/ASME labels work *(BP)*	
38			Annual precision leak detection test for all buried pipes and the secondary containment *(CEPA, NFCC, B139)* Ensure there are leak detection test records and update them (*CEPA, NFCC) (underground piping)*	
39			Check the condition of all aboveground pipes used to transport petroleum products and repair them if necessary *(CEPA, NFCC, B139)*	

[1] Option: Purchase kits to test the fuel, change the fuel if not used frequently or have it filtered if dough of sediment and water contamination to prevent device damage.
[2] Anti-siphon valve in the suction pipe; Should a leak occur in the suction pipe between the Anti-siphon valve and the burner, the valve will prevent the oil in the tank from being siphoned off.

G. Emergency procedures				
Acceptable		Not compliant	Element	Corrective measure
40			Update the emergency response plan (ensure that the location of the environmental emergency response plan matches what is indicated on the CEPA FIRSTS[3]) *(CEPA)*	
41			The tank refuelling log (i.e. registries) is on-site and up-to-date *(CEPA, NFCC, B139)*	
42			All documents relating to tests are conducted on the tank and its equipment (including product loss/spill reports) *(CEPA)*	

Legend:

C282 : Emergency electrical power supply for buildings

CEPA: *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*

BP: Best Management Practices

B139: Installation Code for Oil-Burning Equipment (standard B139)

- the installation of aboveground tanks that have a maximum individual capacity of 2 500 L (550 gal) and a maximum aggregate capacity of 5 000 L (1 100 gal), and the piping and tubing systems from the tanks to the oil-fired appliance.

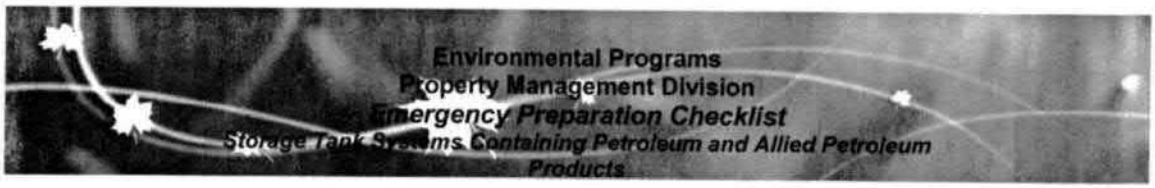
NFCC: National Fire Code of Canada, National Research Council of Canada, 2010:

- The National Fire Code of Canada (NFCC), part 4, details the storage, handling, usage, and treatment of flammable and combustible liquids in buildings, structures and open spaces equipped with underground storage tank systems and aboveground storage tank systems with a total capacity of over 2 500 litres.

[3] Federal Identification Registry for Storage Tank Systems. Environmental Programs group is the Administrator of all EC regulatees.

APPENDIX S: EMERGENCY PREPARATION CHECKLIST

Environment Canada | Environnement Canada



Revised July 2012 by
Marie-Michelle Hobby
PMD
Environmental Programs

Appendix E-1

	Detailed Requirement	Regulatory or Management Practice Reference[1]	Finding	
			Yes (Y)	No (N)
1	The owner or operator of a storage tank system has prepared an emergency plan taking into consideration the following factors:	CEPA-197, 30 (1)		
	(a) the properties and characteristics of each petroleum product or allied petroleum product stored in each tank of the system and the maximum expected quantity of the petroleum product or allied petroleum product to be stored in the system at any time during any calendar year; and	Section 3.5 pg 14 MSDS sheet Section 4.3	✓	
	(b) the characteristics of the place where the system is located and of the surrounding area that may increase the risk of harm to the environment or of danger to human life or health.	Section 3.6 pg 15 Topography	✓	Appendices pictures etc

1) [1] Regulatory: Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations, CEPA 2008-197;
2) Regulatory: Transports of Dangerous Goods (TDG) Regulations SOR/2008-34;
3) Management Practice: Environmental Code of Practice for Aboveground and Underground Storage Tank Systems containing Petroleum and Allied Petroleum Products, Canadian Council of Ministers of the Environment (CCME, 2003);
4) Management Practice: National Fire Code of Canada, the National Research Council Canada (NFCC, 2005);
5) Management Practice: Ontario Fire Code (OFC) O. Reg. 388/97.

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.

Canada

2	The emergency plan required in section 30 (*a*) includes a description of the factors considered under section 30 (1); (*b*) a description of the measures to be used to prevent, prepare for, respond to and recover from any emergency that may cause harm to the environment or danger to human life or health; (*c*) a list of the individuals who are required to carry out the plan and a description of their roles and responsibilities; (*d*) identification of the training required for each of the individuals listed under paragraph (*c*); (*e*) a list of the emergency response equipment included as part of the plan, and the equipment's location; and; (*f*) the measures to be taken to notify members of the public who may be adversely affected by the harm or danger referred to in paragraph (*b*).	CEPA-197, 30 (2) 6.1 to 6.6 pg 34 section 6.4.2 & 5 & 6.3.1.1 to & 6.3.1.4 6.1 pg 27 ✓ Flow chart Section 5.3 pg 26 Appendix D section 6.2 pg 29 2.4 pg 10	✓ ✓ ✓ ✓ ✓	
3	The owner or operator of a storage tank system must ensure that the emergency plan is implemented (a) in the case of a storage tank system that is installed before the coming June 12, 2008, no later than June 12, 2010; and (b) in any other case, before the day on which the first transfer of petroleum products or allied petroleum products into any tank of the storage tank system occurs.	CEPA-197, 30 (3) Effective Date April 1, 2010. N/A.	✓	
4	The owner or operator of a storage tank has kept the emergency plan up-to-date and keep a copy of it readily for the individuals who are to carry of it into effect and at the place where the storage tanks system is located if that place is a place of work. The owner or operator has notified the Minister of the civic address of each location where the emergency plans.	CEPA-197, 31 pg i + control page updated July 2012	✓	

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.
Environmental Programs
Property Management Division

Canada

5	For the purposes of paragraph 212 (1) (a) of the Canadian Environmental Protection Act, 1999, the written report have contained the following information: -the names of both the owner and the operator of the storage tank system; -the identification number of the storage tank system; the date on which the spill, if any, occurred; -the type of each petroleum product or allied petroleum product that is the subject of the report; -the quantity of each petroleum product or allied petroleum product that is the subject of the report or, if the quantity cannot be determined, an estimate of that quantity; -a description of the circumstances of the spill, if any, and any mitigating measures taken; -and a description of the measures taken following the spill, if any, to prevent a subsequent occurrence.	CEPA-197, 41 Section 3.5 pg 14 Section 6.4+ 6.5 Section 5.1	✓	
6	Standard procedures for normal product transfer operation as well as for emergencies are given to operators and posted in print. Fuel Transfer Training must be periodically followed up to ensure that proper procedures are being followed.	CCME, 8.5.3 (2) 5.1 pg 22+23	✓	
7	The owner of each registered storage tank systems prepares and maintains an emergency response planned procedures for reporting, containing, removing, and cleaning up spill or leak.	CCME, 8.9.1 6.4+6.5	✓	
8	Where dangerous goods are stored or handled, the fire safety plan includes the names, addresses and telephone numbers of persons to be contacted in case of fire during non-operating hours.	NFC, 3.1.2.6.1 emergency contacts pg 46 Appendix B -Non specific to fire	✓	

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.
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Property Management Division

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9	1) Appropriate materials and measures are available to clean up any type of spilled liquid or solid dangerous materials or prevent spills from flowing outside the spill area. 2) Materials used to clean up dangerous materials spills are -compatible and non-reactive with the dangerous goods being cleaned up and -are disposed of in a receptacle with a lid.	NFC, 3.2.7.11 6.4.5 pg 35-37 pg 42	✓	✓
10	Individual storage areas used for storage of dangerous goods are clearly designated as such by posted placards conforming to the Transportation of Dangerous Goods Regulations	TDG, 4 6.3.9 section 5 Nothing on placards	✓	Placards Installed
11	All employees involved in the storage and handling of dangerous goods are trained in safe handling procedures and correct responses to an emergency situation by the appropriate federal, provincial, or territorial Occupational Health and Safety. (WHMIS)	Workplace Hazardous Materials Information System (WHMIS) and Hazardous Product Act WHMIS labels section 5	✓	
12	Areas used for storage of dangerous goods are secured against unauthorized access.	NFC, 3.2.7.16 did not find		✓ - But, the facility is so isolated the risks are almost inexistent
13	A spill of flammable or combustible liquids is prevented from flowing outside the spill area and from reaching waterways, sewer systems and potable water sources by: a) constructing a non combustible barrier that can contain the spill; or b) grading site or sloping of the floor to divert the spill to a dedicated drainage system	NFC, 4.1.6.1.1 6.4.5.2 pg 36	✓	
14	Any drainage system designated to collect spills of dangerous goods: a) terminate at a location where the spill will not create a fire hazard or any risk to public health and safety ; and b) directs the spill away from buildings, means of egress or water supplies for	NFC, 4.1.6.2.1 unsure See Appendices "potential discharge" dykes? 6.4.5.1	✓	

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.
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	fire fighting.			
15	Absorbents used to remove spilled or leaked are non combustible. spill kit	NFC, 4.1.6.3.4 and Controlled Products Regulations	6.2 ✓	
16	All employees concerned with transfer operations involving flammable liquids and combustible liquids are trained in: a) emergency procedure; b) the importance of attendance during loading and unloading c) extinguishing procedures for fires; and d) the colour coding and identification system.	NFC, 4.5.10.2.1 and WHMIS 5.3.1 pg 26 training "Being developed" PTA training under development		✓
17	If applicable, Measures to accommodate possible leakage or spillage from HOSE couplings are provided: 1) by constructing a non-combustible barrier of sufficient height to contain the spill or grading the site to divert the spill to a drainage system; 2) having a drainage system that terminate at a location where the spill will not create a hazard and direct the spill away from buildings, exits and access; or 3) preventing the escape of spilled liquids through flushing or use of absorbents.	NFC, 4.8.7.2.1 6.4 pg 36	✓	
18	If applicable, provisions are in place to prevent spillage resulting from the disconnection of hoses.	NFC, 4.8.7.2.2 5.1.1 pg 23	✓	
19	If applicable, pump house are non-combustible construction with floors that are chemically resistant to the liquid being handled, liquid-tight and equipped with curbs or flashings around the base of the wall not less than 100 mm in height to contain any spilled liquid.	NFC, 4.8.10.1 looks like a pump house from picture under process to be changed 2013-2015		✓
20	Transfer operations are carried out only under continuous supervision of a person	NFC, 4.8.11.1.1 5.1.1	✓	

Adapted from PWGSC *Emergency Preparedness Checklist*, 2009.
Environmental Programs
Property Management Division

Canada

	qualified to supervise such operations.			
21	Spill control procedures are approved and implemented for any occupancy where any quantity of flammable or combustible liquids are stored, handled, processed or used.	OFC, 4.1.6.4 (1) 6.4 pg 32-41	✓	
22	Employees engaged in the operation of equipment for the transfer of flammable or combustible liquids are trained in the location, function and operation of valves used for the operation of fire protection equipment and manual emergency shut-off valves.	OFC, 4.4.11.2 (2) 5.3.1 pg 26 "Being developed"		✓

APPENDIX T: SPILL REPORTING REQUIREMENTS IN NUNAVUT

Good Afternoon,

It is important that Environmental personnel working in Nunavut review and understand the different pieces of Nunavut Environmental legislation that identify the spill/release/deposit reporting and prohibition sections. Failure to report without delay is a violation under most pieces of Environmental legislation that apply in Nunavut. Environmental staff when filling out spill reports should be able to articulate and use the below statements. Use statement 1 not only if it enters fish bearing water directly but also if it has the possibility or potential to enter fish bearing waters. In some instances it may be relevant to use more that one of these statements when reporting a spill.

1. This spill is being reported as required by subsections 38(4), 38(5), 38(7) of the *Fisheries Act".* **Also related to reporting under the *Fisheries Act* please read the *Deposit out of the Normal Course of Events Notification Regulations.***
2. This spill is being reported as required by section 24, 31 of the *Metal Mining Effluent Regulations*" pursuant to the *Fisheries Act.*
3. This spill is being reported as required by subsection 12(3) of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*" **This applies to substances determined to be waste and are not set out in the conditions of a Nunavut Water Board Water Licence.**
4. This spill is being reported as required by the conditions under the Nunavut Water Board Licence 2AM-_____, Part H , item 9 b". **(Applies to places that have NWB water licences)**
5. This spill is being reported as required by section 9 of Environment Canada's *Environmental Emergency Regulations* pursuant to paragraph 201(1)(a) of the Canadian Environmental Protection Act, 1999. (Applies to Spills of E2 substances i.e. Ammonia Nitrate, Acetylene, Propane & Gasoline etc.…) **It is anticipated that Diesel fuel will be added to this list in the fall of 2018 so this will have an impact in some places.**
6. This spill is being reported as required by Environment Canada's *Storage Tank Systems For Petroleum Products and Allied Petroleum Products Regulations* section 41 pursuant to paragraph 212(1)(a) of the Canadian Environmental Protection Act, 1999.
7. This spill is being reported as required by the Government of Nunavut's, *Environmental Protection Act* paragraph 5.1(a) **(Applies to all spills)**
8. This spill is being reported as required by the *Arctic Waters Pollution Prevention Act* subsection 5(1) **(Applies to spills into the oceans)**

Don't Forget to add:

1. The Storage Tank System EC ID (EC-0000????) number on the Spill Report if applicable
2. The distance from the spill site to the nearest fish water i.e. creeks, rivers, lakes, or ocean?
3. The lands the spill occurred on i.e. IOL's, Crown Lands

When in doubt if a spill should be reported or not always report it. With all the regulatory requirements requiring spill/release reporting if you fill out the NT/NU spill report it will then be forwarded to all regulatory agencies so you will never have to worry if it was reported to the right regulatory agency or not.

1. Any TSS issues such as bridge/culvert/road wash outs possibly causing high levels of TSS should be reported.
2. High levels of TSS discovered during discharging operations or high levels of sediment/dust accumulation in the snow on the land that later melts and runs offs into fish bearing water should also be reported.
3. If you come across what looks like high TSS levels don't take any chances and just report it.
4. If you come across high TSS levels due to natural phenomes such as stream/lake snow and ice jams or bank side erosion causing high sediment flows please record and document it and it does not hurt to also report it.
5. Any on-site lab or hand held multi meter field readings during releases showing concerns such as pH should be reported.

Note: If you sample to determine if a release is deleterious or not because you are concerned don't wait until the sampling results come back from the lab to report it. Report it right away and if it is determined later when you get the sampling results that it was not deleterious then just send in another spill report **update** stating so.

Note: For all spill incident violations ECCC will always look at whether there was due diligence or not.

Under the *Fisheries Act* **78.6** No person shall be convicted of an offence under this Act if the person establishes that the person
(a) exercised all due diligence to prevent the commission of the offence; or
(b) reasonably and honestly believed in the existence of facts that, if true, would render the person's conduct innocent.

Remember due diligence is what was done **prior** to the spill/release incident happening and not what was done after the incident.

NUNAVUT ENVIRONMENTAL LEGISLATION PROHIBITION SECTIONS

***1994 Migratory Birds Convention Act*: Subparagraph 5.1 (1)** states No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area. **Note: There is no requirement under the *1994 Migratory Birds Convention Act* for spill reporting but you should be aware of this prohibition.**

Fisheries Act: Subsection 36(3) states subject to subsection 36(4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Storage Tank Systems For Petroleum Products and Allied Petroleum Products Regulations: Subparagraph 2.1(1) states A person must not release or permit or cause any release of a petroleum product or allied petroleum product, in liquid form in the environment, from a storage tank system unless, in the case of a system that provides secondary containment, the release does not reach outside that secondary containment.

Storage Tank Systems For Petroleum Products and Allied Petroleum Products Regulations: Subparagraph 2.1(2) states A person must not release or permit or cause any release of a petroleum product or allied petroleum product, in liquid form in the environment, during the transfer of the product to or from a storage tank system if, in the case of a system that has a transfer area, the release during transfer reaches outside the transfer area.

Nunavut Waters and Nunavut Surface Rights Tribunal Act:
Paragraphs 12(1) states subject to subsection (2) and except in accordance with the conditions of a licence, no person shall deposit or permit the deposit of waste
(a) in waters in Nunavut; or
(b) in any other place in Nunavut under conditions in which the waste, or any other waste that results from the deposit of that waste, may enter waters in Nunavut.

Arctic Waters Pollution Prevention Act:
Subsection 4(1) states except as authorized by regulations made under this section, no person or ship shall deposit or permit the deposit of waste of any type in the arctic waters or in any place on the mainland or islands of the Canadian arctic under any conditions where the waste or any other waste that results from the deposit of the waste may enter the arctic waters.

Nunavut Environmental Protection Act:
Subsection 5(1) states subject to subsection 3, no person shall discharge or permit the discharge of a contaminant into the environment.

MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

Movement Document / Manifest Reference No. / N° de référence du document de mouvement/manifeste: **2464475-9**

A Generator / consignor — Producteur / expéditeur

- Registration No. / Provincial ID No.: NUG 100009
- Company name / Nom de l'entreprise: ENVIRONMENT CANADA
- Mailing address / Adresse postale: WEATHER STN, EUREKA, NU XOA OGO
- E-mail / Courrier électronique: EurekaWxStn@EC.GC.CA
- Tel. No. / N° de tél.: (204) 984-6376 Ext 4460
- Shipping site address / Adresse du lieu de l'expédition: EUREKA WEATHER STATION
- City / Ville: EUREKA — Province: NU — Postal code / Code postal: XOA OGO

Intended Receiver / consignee — Réceptionnaire / destinataire prévu

- Company: CLEAN HARBOURS INC
- Mailing address: 7305 BOUL. MARIE-VICTORIN, BROSSARD, PQ
- Tel. No.: (514) 944-1291
- Receiving site address / Adresse du lieu de réception: 7305 BOULEVARD MARIE-VICTORIN
- City / Ville: ~~QUEBEC~~ BROSSARD — Province: QUEBEC — Postal code: J4W 1A6

B Carrier — Transporteur

- Registration No. / Provincial ID No.: NUC 200013
- Company name / Nom de l'entreprise: CANADIAN COAST GUARD / NSSI
- Mailing address: 200 KENT ST., OTTAWA, ON K1A 0E6
- Tel. No.: (613) 998-1585
- Vehicle / Véhicule; Trailer - Rail car No. 1; Trailer - Rail car No. 2; Registration No. / N° d'immatriculation; Port of entry / Port d'entrée; Port of exit / Port de sortie

Carrier Certification: I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct.
Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.

- Name of authorized person (print) / Nom de l'agent autorisé: LUC BELAND
- Tel. No.: 867 979-6298
- Year / Month / Day: 12 08 21
- Signature: Luc Beland

Prov. code	Shipping name / Appellation réglementaire	Class / Classe	UN No. / N° NU	Packing / risk gr.	Quantity shipped / Quantité expédiée	Units	Packaging/Container No.	Codes	Phys. state
(i) NU	BATTERIES, WET, FILLED WITH ACID, ELECTRIC STORAGE (DRAIN & WET)	8	2794	II	600	KG	07		
(ii) NU	ENVIRONMENTALLY HAZARDOUS SUBSTANCE (WASTE OIL FILTERS)	9	3082	III	100	KG	01		
(iii) NU	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (INCIN. ASH)	9	3077	III	2000	KG	01		
(iv) NU	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (WASTE OIL)	9	3082	III	2454	KG	01		

Notice No.	Notice Line No.	Shipment	Of	D or R code	C code	Basel Annex VIII or OECD Code	H code	Y code	Export	Import	Customs code(s)
(i)											
(ii)											
(iii)											
(iv)											

International use only

Generator / consignor certification: I certify that the information contained in Part A is correct and complete.
Attestation du producteur / expéditeur : J'atteste que tous les renseignements à la partie A sont exacts et complets.
Name of authorized person (print) / Signature / Tel. No.

C Receiver / consignee — Réceptionnaire / destinataire

Registration No. / Provincial ID No.
Receiver / consignee information same as in Part A — ☐ Yes / Oui ☐ No, complete the box below
Company name; Mailing address; City; Province; Postal code; E-mail; Tel. No.; Receiving site address
Date received (Year / Month / Day); Time ☐ AM ☐ PM
If waste or recyclable material to be transferred, specify intended company name.
Quantity received; Units; Comments; Handling Code; Shipment Accepted / Refused; Discrepancy
If handling code "Other" (specify)

Receiver / consignee certification: I certify that the information contained in Part C is correct and complete.
Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.
Name of authorized person (print); Signature; Tel. No.
Special handling: ☐ Attached ☐ As follows
Date shipped; Time ☐ AM ☐ PM; Scheduled arrival date

MOE 04-1917 (07/07)

Instructions for completion and distribution on reverse / Instructions pour compléter et distribuer au verso

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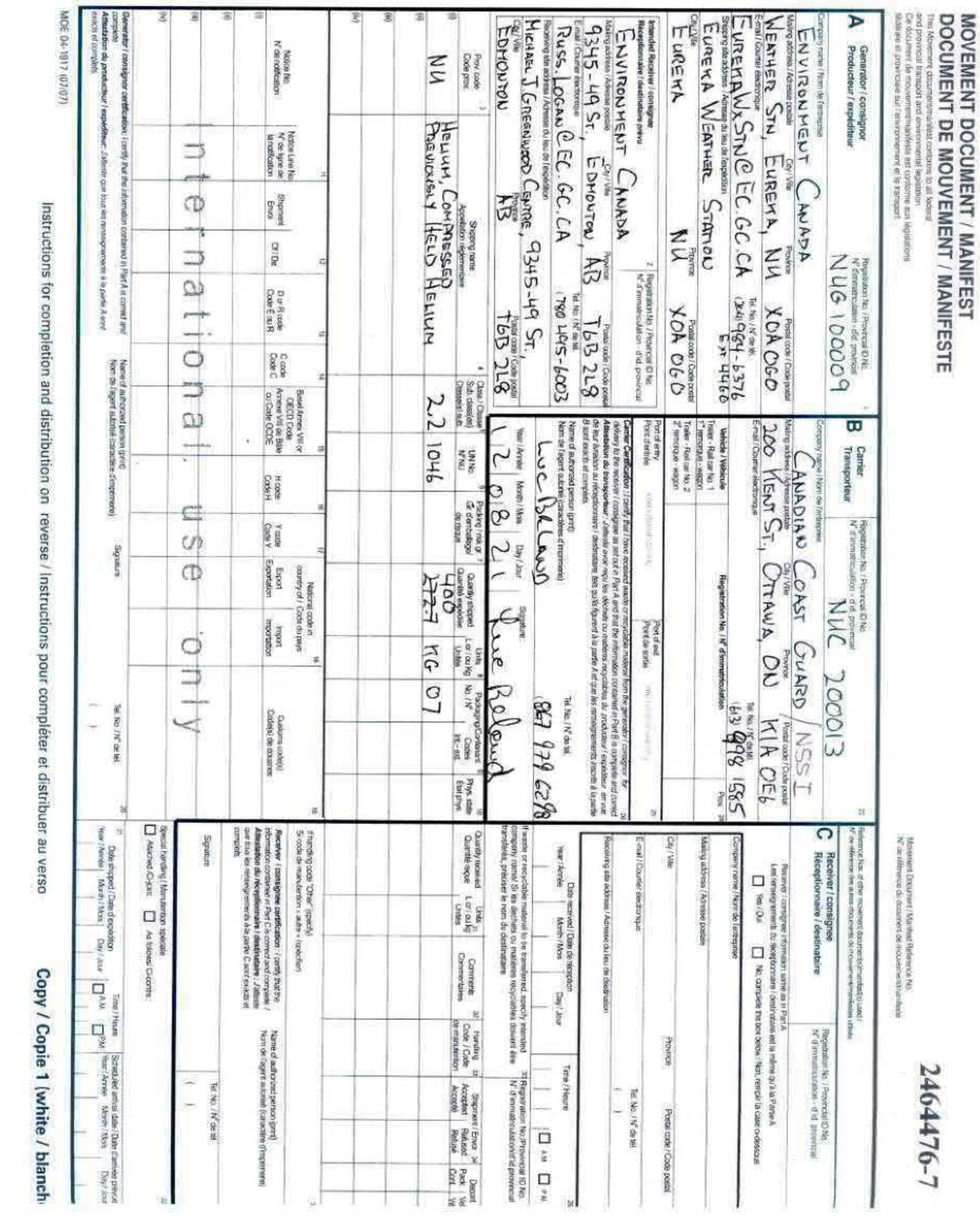

MOVEMENT DOCUMENT / MANIFEST
DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

Movement Document / Manifest Reference No. / N° de référence du document de mouvement/manifeste: 2464476-7

A — Generator / consignor / Producteur / expéditeur
Registration No. / Provincial ID No.: NUG 100009
Company name: ENVIRONMENT CANADA
Mailing address: WEATHER STN, City: EUREKA, Province: NU, Postal code: X0A 0G0
E-mail: EUREKAWxSTN@EC.GC.CA — Tel. No.: (204) 984-6376 Ext 4460
Shipping site address: EUREKA WEATHER STATION
City: EUREKA, Province: NU, Postal code: X0A 0G0

Intended Receiver / consignee / Réceptionnaire / destinataire prévu
Company name: ENVIRONMENT CANADA
Mailing address: 9345-49 ST., City: EDMONTON, Province: AB, Postal code: T6B 2L8
E-mail: RUSS.LOGAN@EC.GC.CA — Tel. No.: (780) 495-6003
Receiving site address: MICHAEL J GREENWOOD CENTRE, 9345-49 ST.,
City: EDMONTON, Province: AB, Postal code: T6B 2L8

B — Carrier / Transporteur
Registration No. / Provincial ID No.: NUC 200013
Company name: CANADIAN COAST GUARD / NSS I
Mailing address: 200 KENT ST., City: OTTAWA, Province: ON, Postal code: K1A 0E6
Tel. No.: (613) 998 1585

Carrier Certification: I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct.
Name of authorized person (print): LUC BRLAND — Tel. No.: 867 979 6298
Year / Month / Day: 12 08 21 — Signature: [signature]

Prov. code	Shipping name	Class / Sub. class(es)	UN No.	Packing / risk gr.	Quantity shipped	Units L or kg	Packaging/Container No.	Codes	Phys. state
NU	HELIUM, COMPRESSED PREVIOUSLY HELD HELIUM	2.2	1046		400 / 272.7	KG	07		

International use only

C — Receiver / consignee / Réceptionnaire / destinataire

MOE 04-1917 (07/07)

Instructions for completion and distribution on reverse / Instructions pour compléter et distribuer au verso

Copy / Copie 1 (white / blanch

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1. Eureka Site Safety and Emergency Contingency Plans, Environment and Climate Change Canada, August 2009.
2. Guidelines for Spill Contingency Planning, Indian and Northern Affairs Canada, April 2007.
3. Nunavut Water Board Licence No. 3BC-EUR1116 issued to Environment and Climate Change Canada by the Nunavut Water Board, June 7, 2011.
4. Oil Pollution Emergency Plan for Fuel Transfer at Eureka HAWS, Environment and Climate Change Canada, July 2006.
5. Oil Pollution Emergency Plan for Land Spills, - Eureka High Arctic Weather Station – in support of the Nunavut Water Board Licence No. 3BC-EUR1116, Environment and Climate Change Canada, 2016.
6. Summary of Operations and Maintenance Procedures for Sewage, Solid Waste Disposal and Waste Treatment Facilities – Eureka High Arctic Weather Station – in support of the Nunavut Water Board Licence No. 3BC-EUR1116, Environment and Climate Change Canada, 2016.
7. Summary of Spill Events in Canada, 1984-1995, Environment and Climate Change Canada.