Spill Contingency Plan
Canadian Forces Station Alert (ERK), Nunavut

In support of the
Nunavut Water Board Licence
No. 3BC-ERK1015

Originally prepared: November 2010
Revised: June 2015

Prepared for:
1 Canadian Air Division,
Department of National Defence

Originally prepared by:
Environmental Services
Defence Construction Canada

Revised by:
8 Wing Environmental Management
Department of National Defence

Canada

Revision Control Page

Revision No.	Revised By	Date	Issue/Revision Description
1.0	FSC Architects & Engineers	March 2009	Draft.
2.0	Defence Construction Canada	November 2010	Updated Final Report to address deficiencies identified in the NWB Licence.
3.0	Department of National Defence	January 2014	Final. Updated: licensee contact, contact lists, fuel tank systems. Added Section 4.4 for the Aboveground Fuel Pipelines.
3.1	Department of National Defence	June 2015	Minor changes to title page and date. Revised names of AANDC to INAC, EC to ECCC. Updated MSDS & HazWaste sections.

Table of Contents

Acronyms

1 CAD	1 Canadian Air Division
8 Wing	8 Wing Trenton
AES	Atmospheric Environment Service
CARF	Consignment Authorization and Receipt Form
CFS	Canadian Forces Station
DND	Department of National Defence
ECCC	Environment & Climate Change Canada
EME	Electrical and Mechanical Engineering
HazMat	Hazardous Materials
HazWaste	Hazardous Waste
HAWS	High Arctic Weather Station
INAC	Indigenous and Northern Affairs Canada
KIA	Kitikmeot Inuit Association
MSDS	Material Safety Data Sheet
NT-NU	Northwest Territories- Nunavut
NWB	Nunavut Water Board
O&M	Operation and Maintenance Plan
POL	Petroleum Oil Lubricants
WEnvO	Wing Environment Officer

1 Introduction

This Spill Contingency Plan for Canadian Forces Station (CFS) Eureka has been created to address the requirements of the Nunavut Water Board (NWB) under licence number 3BC-ERK1015 issued to the Department of National Defence (DND) on June 18, 2010.

Eureka is located near Slidre Fiord on the west coast of Ellesmere Island within the Qikiqtani Region of Nunavut (79°59'20" N, 85°56'30" W). The adjacent map illustrates the location of Eureka in relation to CFS Alert.

Map illustrating location of CFS Eureka.

Eureka was first established on Ellesmere Island in 1947 as the High Arctic Weather Station (HAWS) for the Atmospheric Environment Services (AES) of Environment Canada. In 1982 the Department of National Defence (DND) installed a series of relay towers between Eureka and CFS Alert to improve the communications.

Eureka was established as the military quarters for personnel maintaining the communications equipment supporting CFS Alert and is the military quarter for training missions in the North.

1.1 LICENCEE INFORMATION

Col. Kevin Horgan
Director A4 Construction Engineering
1 Canadian Air Division Headquarters
Department of National Defence
PO Box 17000 Stn Forces
Winnipeg, Manitoba, R3J 3Y5

1.2 INFORMATION OF 24 HOUR CONTACT

Alert Commanding Officer or Wing Commander 8 Wing Trenton

1.3 GENERAL DESCRIPTION OF THE PROPERTY

The primary facilities at Eureka are located at the Main Camp, located approximately 2 km from the HAWS, and adjacent to the airstrip. DND infrastructure includes the Accommodations Building, a vehicle maintenance garage, aircraft refuelling apron, fuel storage tanks, the sewage lagoon, and three landfills (refer to Figure 1, Appendix A).

Potable water for the station is obtained from Environment Canada's water system, which acquires its water from Station Creek. The water collected for the Environment Canada site is pumped from Station Creek over a period of approximately one month during the spring melt, allowing continuous flow of water within the creek. The water is collected within a reservoir where it is retained for use for the remainder of the year. Water use for Eureka is withdrawn from the reservoir and trucked to a cistern located at the military quarters building. The water is then passed through a reverse osmosis filtration system and is chlorinated prior to use for drinking or food preparation.

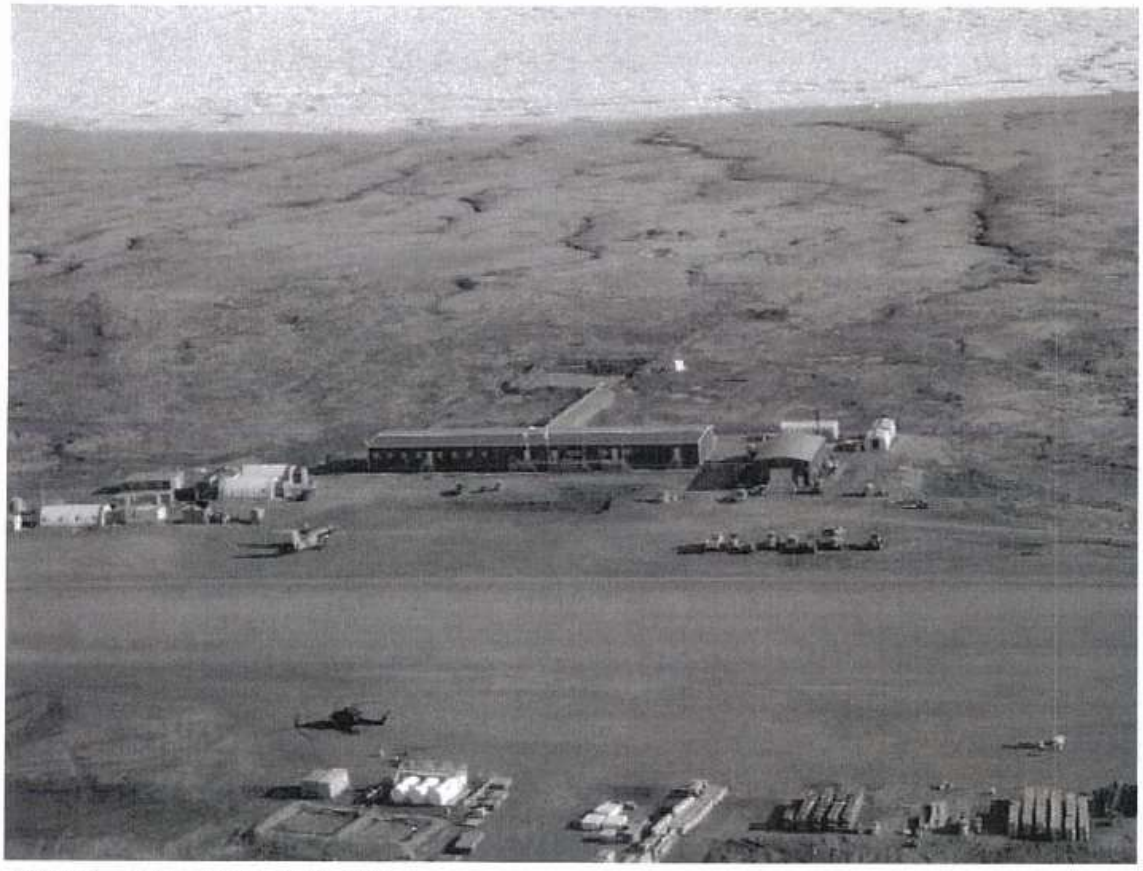


Photo 1. CFS Eureka, Nunavut.

Building	**Water**	**Bleeder**	**Sewer**	**Status**
CFS Eureka	Yes	No	Yes	Operational

2 Project Facility Description

2.1 DOMESTIC GREYWATER SEWAGE

A new grey water and sewage outfall pipe extends approximately 75 m south, starting from the new accommodations building where it is connected to the bioreactor, and discharging into an unlined lagoon that collects the waste water. The land in the area of the accommodations building is flat. The local topography shows a moderate slope proximate to the lagoon, then a slight slope toward the Fjord located approximately 0.5 to 1 km south.

2.2 SOLID WASTE

All combustible garbage is incinerated before disposal. The ash and remaining non-combustible refuse is transported to the East Airstrip Landfill for disposal. The landfill currently in use was partly remediated in 1995, when a granular/soil mixture was placed over portions of the landfill. Further assessments of the landfill were conducted in 1998, 1999, and 2006 indicating that little migration of any metals or hydrocarbons from the landfill has occurred. The landfill area was subsequently completely covered in 2008.

2.3 FUEL STORAGE

Eureka has four 30,000L JP8 tanks located on the north side of the Petroleum Oil and Lubricants (POL) shed across the airfield from the accommodation building. The four aboveground storage tanks are horizontal in configuration and are double-walled. Fuel is brought into Eureka by Canadian Forces Transport Aircraft and then transferred to the bulk fuel station.

2.4 CHEMICALS AND HOUSEHOLD DETERGENTS

The only chemicals used on the station are typical household cleaners and detergents; as a result, wastewater from CFS Eureka is non-hazardous in nature.

2.5 MATERIAL SAFETY DATA SHEETS

MSDSs for all hazardous materials are maintained at the HazMat lockers. As required, the MSDSs are available for consultation and are reviewed on an annual bases to ensure that they are updated prior to their three year expiration date. A copy of the MSDS for JP8 is enclosed in Appendix B.

3 Type and Amount of Contaminants Stored at Site

3.1 DOMESTIC SEWAGE

Domestic sewage is not stored on site. The sewage flows under gravity to the discharge point. There are no lift stations where sewage may accumulate. The only sewage generated at Eureka by DND is from the accommodation building during the summer months due to the fact that the camp is only seasonally active.

3.2 SOLID WASTE

All combustible garbage is incinerated before disposal at the landfill.

3.3 FUEL

Eureka has four 30,000L storage tanks containing JP8 fuel located on the north side of the POL shed.

3.4 CHEMICALS AND HOUSEHOLD DETERGENTS

All products are purchased in Canada, and where required, registered in accordance with applicable legislation.

3.5 RADIOACTIVE MATERIALS

No known radiation sources are stored on site, unless as part of telecommunications systems. They are all removed and shipped to the support base for disposal if/when required.

4 Spill Prevention Measures

4.1 DOMESTIC SEWAGE

Domestic sewer lines at Eureka are only used in the summer season as the station is only seasonally active. The system is checked each year on the initial start-up to ensure there are no leaks in the system.

4.2 SOLID WASTE

All combustible garbage is incinerated in proper facilities.

4.3 FUEL STORAGE

The four 30,000 L fuel tanks are double walled to ensure no leaking occurs from the tanks. When the tanks are in use they are inspected regularly to ensure that all couplings are tight and there are no leaks.

When transferring fuels, only trained personnel operate and supervise the transferring process (i.e., aircraft to tanks). Sumps and fuel storage tanks are located at a distance greater than 31 m from any water body high watermark and are inspected regularly. Maintenance and servicing of equipment is to be conducted only in designated area. Secondary containments such as drip pans are to be used to manage vehicle fluids and contain potential spills.

4.4 CHEMICALS AND HOUSEHOLD DETERGENTS

All chemicals and household detergents are stored within a proper fire proof and spill proof storage unit. Care is taken when using or transferring these materials. Only containers in good condition, properly labelled, and free of defects/damage shall be used.

4.5 HAZARDOUS WASTE

Hazardous Waste (HazWaste) Shipping and Manifesting are regulated at CFS Eureka under CFS Eureka's Water Licence and the *Interprovincial Movement of Hazardous Waste Regulation (IMHWR)* of the Canadian *Environmental Protection Act (CEPA)*.

Hazardous waste is shipped from CFS Eureka to CFS Alert to 8 Wing Trenton in DND transport aircraft (i.e., Supply – HazWaste Facility) that follows a direct (non-international) flight path, as a requirement under the *Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWRMR)* of CEPA.

CFS Eureka operates under the Department of National Defence - CFS Alert's Government of Nunavut issued Hazardous Waste Generator number: NUG100048 and the Hazardous Waste Carrier number: NUC200012. HazWaste is tracked using the standard Movement Document/Manifest (MOE 04-1917 07/07) provided by the Territory of Nunavut Department of Environment. Copies are kept at CFS Eureka Traffic/Shipping Section, with copies at 8 Wing Trenton's Wing Environmental Management Office and Wing Supply-HazWaste Section.

HazWaste is internally tracked using DND's Mainifest Tracking System. Hazardous waste is shipped only once the consignment Authorization and Receipt Form (CARF) is completed and identifies whether the cargo is a dangerous good. CARF's (i.e., manifests) are kept on file at the 8Wing Trenton Supply-HazWaste Section. This facility receives and properly disposes of hazardous waste through contractors. Refer to Appendix C for the CARF template; form reference number DND 690(5-94), 7530-21-903-1515.

All hazardous waste disposal activities are reported to the NWB annually through the annual report.

5 Spills

5.1 IN The CASE OF A SPILL

5.1.1 Initial Response

The initial response and containment of a spill is the responsibility of the unit/persons experiencing the incident. All spills of fuel or hazardous materials, regardless of size, must be immediately reported to the Senior Officer at Eureka. Eureka must notify the Environment Officer at (613) 392-2811 x3930 or Environmental Assistant at (613) 392-2811 x3997 at 8 Wing Trenton of the spill as soon as possible. The Senior Officer at Eureka, at the time of the incident, is the proper authority for directing and ensuring that the clean-up and handling of any hazardous materials is carried out in a safe and responsible manner. The Senior Officer will assign one of their personnel to oversee the handling of the incident and its associated clean-up. In addition, units are to appoint a Spill Response Coordinator whose role will be to:

1. Contain the spill.
2. Immediately contact the Senior Officer.
3. Secure area until the Senior Officer or their representative arrives.
4. Assist in containing and cleaning-up of the spilled materials
5. Insure that the Senior Officer's representative has all of the information required to complete a Hazardous Material Incident Report Form upon resolution of the incident.

The Hazardous Material Incident Report must be completed and submitted to the 8 Wing Trenton WEnvO within 24 hours of occurrence.

5.1.2 Methods of Containment

The main objective of containment shall be to limit the area affected by the spill and to prevent its spread to adjoining waterways or surface drainage systems.

1. Containment dikes or berms – constructed of impermeable or absorbing materials will be the main method of containing spills on land.

2. Trenches or Storage pits – used for temporary storage of spilled liquids and as intercepting channels for large spills. This can be used when the spill zone has a significant slope.

3. Small spills – to be cleaned with absorbent material in granular or blanket form to immobilize or absorb the spilled liquid.

4. Spills in winter – frozen ground is much less permeable to fluids, and therefore spilled material will flow differently in winter than summer. These spills will be contained when possible with berms of snow. When the entire spill is absorbed with snow, the snow will be deposited within a containment area. Cold temperatures will inhibit the flow of most liquids, but de-icing fluids and most jet fuels will resist freezing. Spills in or on ice covered streams and ponds require special techniques depending on weather on whether the spill materials sinks, floats or dissolves.

5. Spills on water – spills that reach the watercourses will spread quickly, so speed of action is essential for containment. Only floating substances are amendable to containment, those that sink or dissolve are not likely to be controlled once they reach a watercourse. A containment boom is the method of containment if the spilled material floats.

5.1.3 Initial Incident Reporting

All spills are immediately reported to the Senior Officer.

Major spills are reported by message using a Significant Incident Report. All hazmat spills that require a Significant Incident Report have an Air Command Hazardous Material Incident Report completed and forwarded to Command within 14 days. (Refer to http//admfincs.mil.ca/adminfincs/subjects/daod/2008/3_e.asp for more information on SIRs).

5.1.4 Decontamination Action

1. Ensure the spill has been stopped and contained.

2. Remove all contaminates to designated areas.

3. If the spill happens in the winter mark the extent of the contamination to provide a guide for the Inspector in the summer months.

4. During the summer season 8 Wing Environmental Management, will take soil samples as necessary and submit them for appropriate analysis to determine the course of remediation action, if any.

5.1.5 Site Inspection

During summer months, a qualified inspector will complete a site inspection, take soil samples and submit them for appropriate analysis where necessary. The site inspector in conjunction with the WEnvO will develop a remediation plan, where necessary on how to remediate any contamination.

5.1.6 Reporting Action

In the event of a spill:

1. The Spill Contingency Plan will be employed by all station personnel.

2. The Senior Officer at Eureka or representative will complete the Eureka Spill Report for all spills regardless of size, and submit the Spill Report to 8 Wing Trenton Environmental Management within 24 hours by fax/e-mail.

3. 8 Wing Trenton Environmental Management is responsible for reporting to required legislative authorities to prevent any potential financial or disciplinary penalties. CFS Eureka does not report to outside departments/agencies, as such, 8 Wing will:

    - Report the spill to the Northwest Territories-Nunavut (NT_NU) 24 Hour spill line (867-920-8130), that exceed the guidelines in Table 2 (below).

    - Complete and submit the Northwest Territories-Nunavut (NT-NU) Spill Response Form to the spill line as soon as possible, with revisions if any.

    - Inform the Indigenous and Northern Affairs Canada Water (INAC Iqaluit) Resource Officer (Inspector) (867-975-4289)

- Inform the Environment and Climate Change Canada (ECCC Iqaluit) Enforcement Officer (Inspector) (867-975-4644)

- Enter the 1 Canadian Air Division (1CAD) Hazardous Materials Incident Report Spreadsheet for SpillNet (refer to Appendix F for spill report spreadsheet.

- Complete and submit a detailed spill report to the Inspector and Enforcement Officer within 30 days after the initial reporting event (as per the Water Licence).

4. The representative will ensure the Spill Report is signed by the Senior Officer or senior authority.

5. Spills must be reported to ensure that the appropriate site clean-up is initiated. Should any remediation for a spill be undertaken on site a qualified site inspector shall fill out a daily process report.

Table 2. 8 Wing will all spills to the NT-NU Spill Line that exceed the below guidelines.

Classification	**Hazard**	**Reportable Quantity**
1	Explosives	All
2.1	Compressed Gas (flammable)	100 L
2.2	Compressed Gas	100 L
2.3	Compressed Gas (toxic)	All
2.4	Compressed Gas (corrosive)	All
3	Flammable Liquids	50 L
4	Flammable Solids	1 kg
5.1 PG I & II	Oxidizer	1 kg or 1 L
PG III	Oxidizer	50 kg or 50 L
5.2	Organic Peroxide	1 kg or 1 L
6.1 PG I	Acute Toxic	1 kg or 1 L
PG 11 & III	Acute Toxic	5 kg or 5 L
6.2	Infectious	All
7	Radioactive	Any discharge or radiation level exceeding 10 mSv/h at the package surface and 200 uSv/h at 1 m from the package surface
8	Corrosive	5 kg or 5 L
9.1	Miscellaneous (except PCB mixtures)	50 kg
9.1	PCB Mixtures	500 g
9.2	Aquatic Toxic	1 kg or 1 L
9.3	Wastes (chronic toxic)	5 kg or 5 L

5.2 SPILL RESPONSE TRAINING

Training is to be conducted annually. All DND personnel at Eureka will be trained and made available to assist the Emergency Response Team. Personnel will be trained in the following:

1. Spill awareness & prevention
2. Methods of detection
3. Types of spills and seasonal conditions
4. Report procedures and Initial responses
5. Spill response kit
6. Clean-up and site remediation
7. Occupational health & safety, protective equipment & selection
8. Safe operation of machinery & tools
9. Construction of a containment berm using snow or soil & plastic liner

5.3 SPILL KITS

There are three spill kits located at Eureka for use in case of a spill (refer to Appendix A). The spill kits are located in the following locations:

- POL shed near the runway
- Mechanical room of the main building
- Electrical Mechanical Engineering (EME) Garage

Spill kits* should contain at a minimum the following contents:

12 Fuel absorbent pads/pillows
2 Gloves
3 Bags absorbal
1 Drain cover
1 Non-sparking shovel
10 Garbage bags
2 Goggles
1 Water prove package containing the Emergency Response Plan

5.4 EXTERNAL EMERGENCY CONTACTS

NT-NU 24 hour Spill Report Line (867) 920-8130
INAC Water Resource Officer (Inspector) (867) 975-4295
Government Nunavut Department of Environment, Iqaluit (867) 979-7800
Environment And Climate Change Canada Enforcement Officer (867) 975-4644
Kitikmeot Inuit Association (KIA) (867) 983 2458

APPENDIX A: Figures

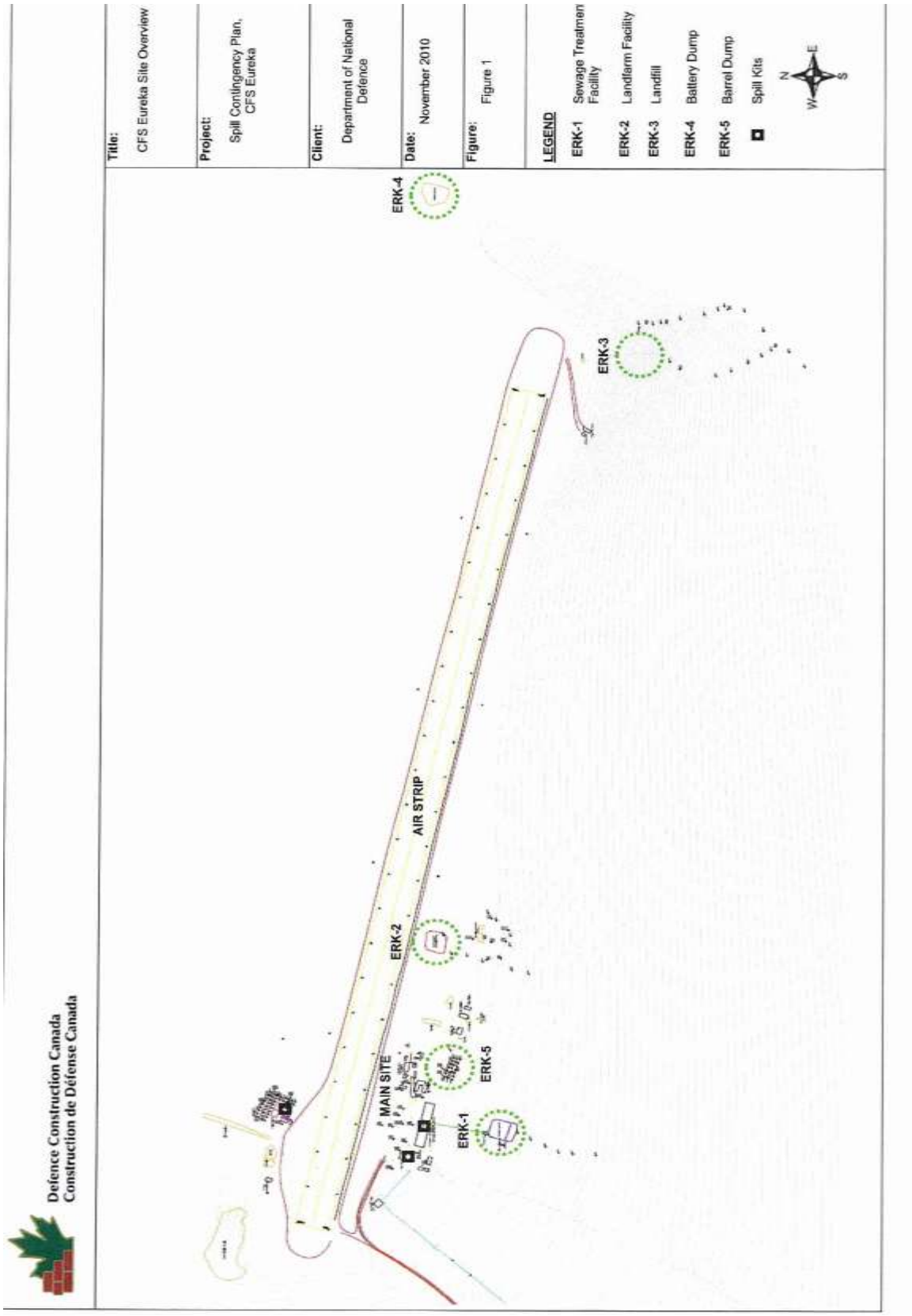


Figure 1 Map of CFS Alert.

APPENDIX B: MSDS Sheet (JP8 Fuel)

Material Safety Data Sheet

JET A/A-1 AVIATION TURBINE FUEL

1. Product and company identification

Product name : JET A/A-1 AVIATION TURBINE FUEL

Synonym : Jet A-1; Jet A-1-DI; Aviation Turbine Kerosene (ATK); JP-8; NATO F-34; Jet F-34; Turbine Fuel, Aviation, Kerosene Type (CAN/CGSB-3.32)

Code : W213, SAP: 149

Material uses : Used as aviation turbine fuel. May contain a fuel system icing inhibitor. In the arctic, Jet A-1 may also be used as diesel fuel (if it contains a lubricity additive) and heating oil.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : Petro-Canada: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2. Hazards identification

Physical state : Clear liquid.

Odour : Kerosene-like.

WHMIS (Canada) :

Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2A: Material causing other toxic effects (Very toxic).

The WHMIS classification of Jet A/A-1 is B3.
The WHMIS classification of Jet A/A-1-DI, JP-8, Jet F-34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : CAUTION!

COMBUSTIBLE LIQUID AND VAPOUR. MAY CAUSE EYE AND SKIN IRRITATION. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Combustible liquid. Slightly irritating to the eyes and skin. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which may cause birth defects, based on animal data. Avoid exposure during pregnancy. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure, coma and death.

Ingestion : Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

2 . Hazards identification

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : Contains material which may cause birth defects, based on animal data.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Complex mixture of petroleum hydrocarbons (C9-C16)*(Kerosene)	8008-20-6	99.9
Fuel System Icing Inhibitor (FSII) (if added**): (Diethylene Glycol Monomethyl Ether)	111-77-3	0.1 - 0.15
Anti-static, antioxidant and metal deactivator additives	Not applicable	<0.1

*Aromatic content is 25% maximum (benzene: nil).
**Please note that Jet A-1-DI, JP-8, Jet F-34 and NATO F-34 all contain Fuel System Icing Inhibitor.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

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 recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : Class II - combustible liquid (NFPA).

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5 . Fire-fighting measures

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : 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. May accumulate in confined spaces.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure during pregnancy. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

7 . Handling and storage

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Ensure the storage containers are grounded/bonded.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Kerosene	**ACGIH TLV (United States). Absorbed through skin.** TWA: 200 mg/m³ 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. 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. Recommended: 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.

Hands : 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.
Recommended: polyvinyl alcohol (PVA), Viton®. 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.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

8 . Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Clear liquid.
Flash point : Closed cup: ≥38°C (≥100.4°F) [Tag. Closed Cup]
Auto-ignition temperature : 210°C (410°F)
Flammable limits : Lower: 0.7%
Upper: 5%
Colour : Clear and colourless.
Odour : Kerosene-like.
Odour threshold : Not available.
pH : Not available.
Boiling/condensation point : 140 to 300°C (284 to 572°F)
Melting/freezing point : Not available.
Relative density : 0.775 to 0.84 (Water=1)
Vapour pressure : 0.7 kPa (5.25 mm Hg) @ 20°C (68°F).
Vapour density : 4.5 [Air = 1]
Volatility : Volatile.
Evaporation rate : Not available.
Viscosity : 1.0 - 1.9 cSt @ 40°C (104°F)
Pour point : <-51°C (<-60°F)
Solubility : Insoluble in water. Partially miscible in some alcohols. Miscible with other petroleum solvents.

10 . Stability and reactivity

Chemical stability : The product is stable.
Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.
Materials to avoid : Reactive with oxidising agents, acids and alkalis.
Hazardous decomposition products : May release COx, NOx, SOx, aldehydes, acids, ketones, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Kerosene	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapour	Rat	>5000 mg/m³	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

11 . Toxicological information

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Kerosene	A3	3	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1863	FUEL, AVIATION, TURBINE ENGINE	3	III		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Combustible liquid

Canada

WHMIS (Canada) : Class B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).
Class D-2A: Material causing other toxic effects (Very toxic).

The WHMIS classification of Jet A/A-1 is B3.
The WHMIS classification of Jet A/A-1-DI, JP-8, Jet F-34 and NATO F-34, which all contain FSII (Diethylene Glycol Monomethyl Ether), is B3, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

16 . Other information

Label requirements : COMBUSTIBLE LIQUID AND VAPOUR. MAY CAUSE EYE AND SKIN IRRITATION. POSSIBLE BIRTH DEFECT HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE BIRTH DEFECTS, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.) :

Health	2
Flammability	2
Physical hazards	0
Personal protection	H

National Fire Protection Association (U.S.A.) :

References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **5/24/2012.**

Date of issue : 24 May 2012

Date of previous issue : 5/24/2012.

Responsible name : **Product Safety - DSR**

Indicates information that has changed from previously issued version.

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

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

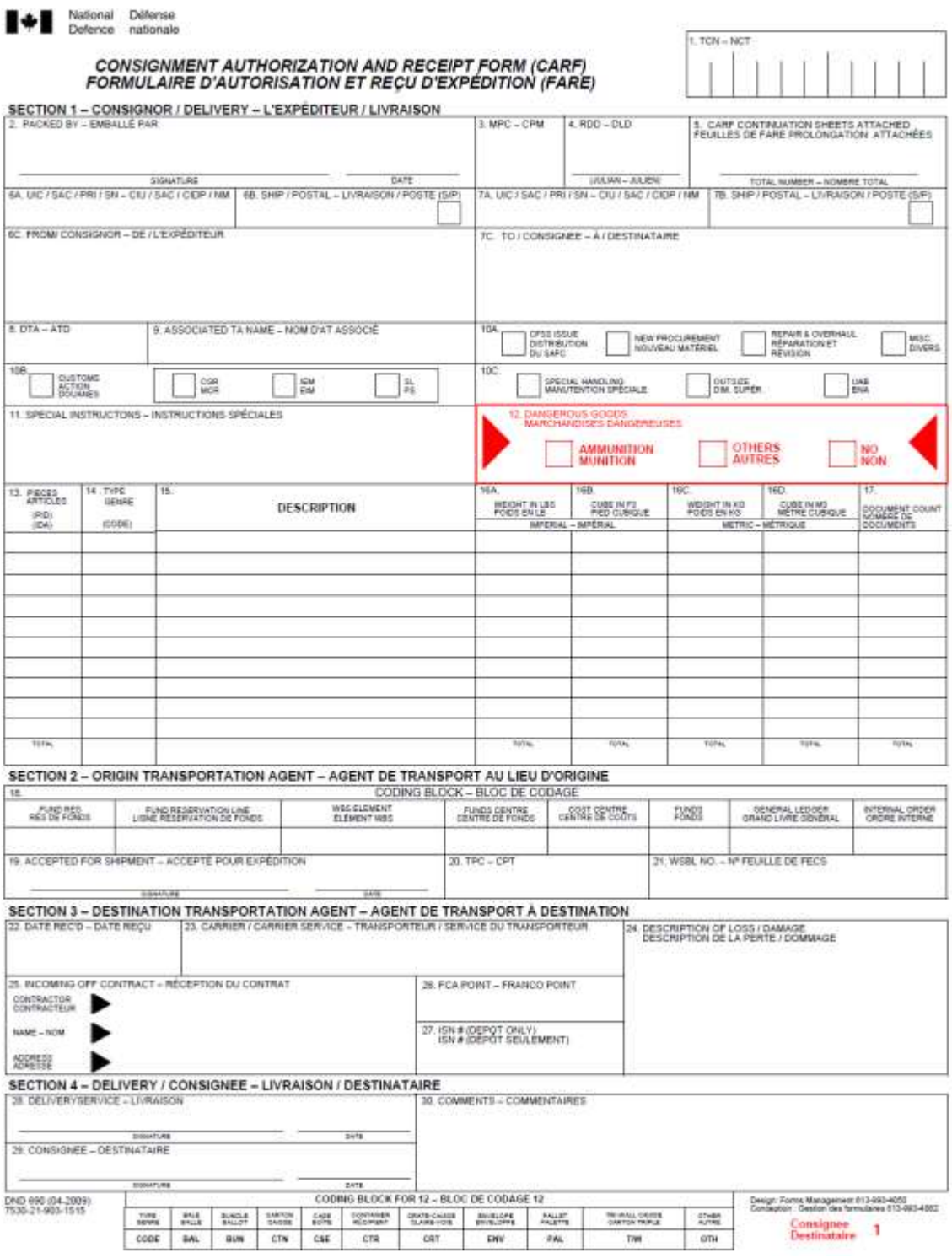
For Product Safety Information: (905) 804-4752

Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

APPENDIX C: Manifest Tracking System Form-CARF & Movement Document



National Defence / Défense nationale

CONSIGNMENT AUTHORIZATION AND RECEIPT FORM (CARF)
FORMULAIRE D'AUTORISATION ET REÇU D'EXPÉDITION (FARE)

1. TCN – NCT

SECTION 1 – CONSIGNOR / DELIVERY – L'EXPÉDITEUR / LIVRAISON

2. PACKED BY – EMBALLÉ PAR (SIGNATURE / DATE)
3. MPC – CPM
4. RDD – DLD (JULIAN – JULIEN)
5. CARF CONTINUATION SHEETS ATTACHED – FEUILLES DE FARE PROLONGATION ATTACHÉES (TOTAL NUMBER – NOMBRE TOTAL)
6A. UIC / SAC / PRI / SN – CIU / SAC / CIDP / NIM
6B. SHIP / POSTAL – LIVRAISON / POSTE (S/P)
7A. UIC / SAC / PRI / SN – CIU / SAC / CIDP / NIM
7B. SHIP / POSTAL – LIVRAISON / POSTE (S/P)
6C. FROM/ CONSIGNOR – DE / L'EXPÉDITEUR
7C. TO / CONSIGNEE – À / DESTINATAIRE
8. DTA – ATD
9. ASSOCIATED TA NAME – NOM D'AT ASSOCIÉ
10A. CFSS ISSUE DISTRIBUTION DU SAFC / NEW PROCUREMENT NOUVEAU MATÉRIEL / REPAIR & OVERHAUL RÉPARATION ET RÉVISION / MISC DIVERS
10B. CUSTOMS ACTION DOUANES / CGR MCR / IDM EIM / SL PS
10C. SPECIAL HANDLING MANUTENTION SPÉCIALE / OUTSIDE DIM. SUPER / UAB ENA
11. SPECIAL INSTRUCTIONS – INSTRUCTIONS SPÉCIALES
12. DANGEROUS GOODS – MARCHANDISES DANGEREUSES: AMMUNITION MUNITION / OTHERS AUTRES / NO NON

13. PIECES ARTICLES (PID) (IDA)	14. TYPE GENRE (CODE)	15. DESCRIPTION	16A. WEIGHT IN LBS POIDS EN LB (IMPERIAL – IMPÉRIAL)	16B. CUBE IN FT3 PIED CUBIQUE (IMPERIAL – IMPÉRIAL)	16C. WEIGHT IN KG POIDS EN KG (METRIC – MÉTRIQUE)	16D. CUBE IN M3 MÈTRE CUBIQUE (METRIC – MÉTRIQUE)	17. DOCUMENT COUNT NOMBRE DE DOCUMENTS
TOTAL			TOTAL	TOTAL	TOTAL	TOTAL	TOTAL

SECTION 2 – ORIGIN TRANSPORTATION AGENT – AGENT DE TRANSPORT AU LIEU D'ORIGINE

18. CODING BLOCK – BLOC DE CODAGE

FUND RES RÉS DE FONDS	FUND RESERVATION LINE LIGNE RÉSERVATION DE FONDS	WBS ELEMENT ÉLÉMENT WBS	FUNDS CENTRE CENTRE DE FONDS	COST CENTRE CENTRE DE COÛTS	FUNDS FONDS	GENERAL LEDGER GRAND LIVRE GÉNÉRAL	INTERNAL ORDER ORDRE INTERNE

19. ACCEPTED FOR SHIPMENT – ACCEPTÉ POUR EXPÉDITION (SIGNATURE / DATE)
20. TPC – CPT
21. WSBL NO. – Nº FEUILLE DE FECS

SECTION 3 – DESTINATION TRANSPORTATION AGENT – AGENT DE TRANSPORT À DESTINATION

22. DATE REC'D – DATE REÇU
23. CARRIER / CARRIER SERVICE – TRANSPORTEUR / SERVICE DU TRANSPORTEUR
24. DESCRIPTION OF LOSS / DAMAGE – DESCRIPTION DE LA PERTE / DOMMAGE
25. INCOMING OFF CONTRACT – RÉCEPTION DU CONTRAT (CONTRACTOR CONTRACTEUR / NAME – NOM / ADDRESS ADRESSE)
26. FCA POINT – FRANCO POINT
27. ISN # (DEPOT ONLY) – ISN # (DÉPOT SEULEMENT)

SECTION 4 – DELIVERY / CONSIGNEE – LIVRAISON / DESTINATAIRE

28. DELIVERY/SERVICE – LIVRAISON (SIGNATURE / DATE)
29. CONSIGNEE – DESTINATAIRE (SIGNATURE / DATE)
30. COMMENTS – COMMENTAIRES

DND 690 (04-2009)
7530-21-993-1515

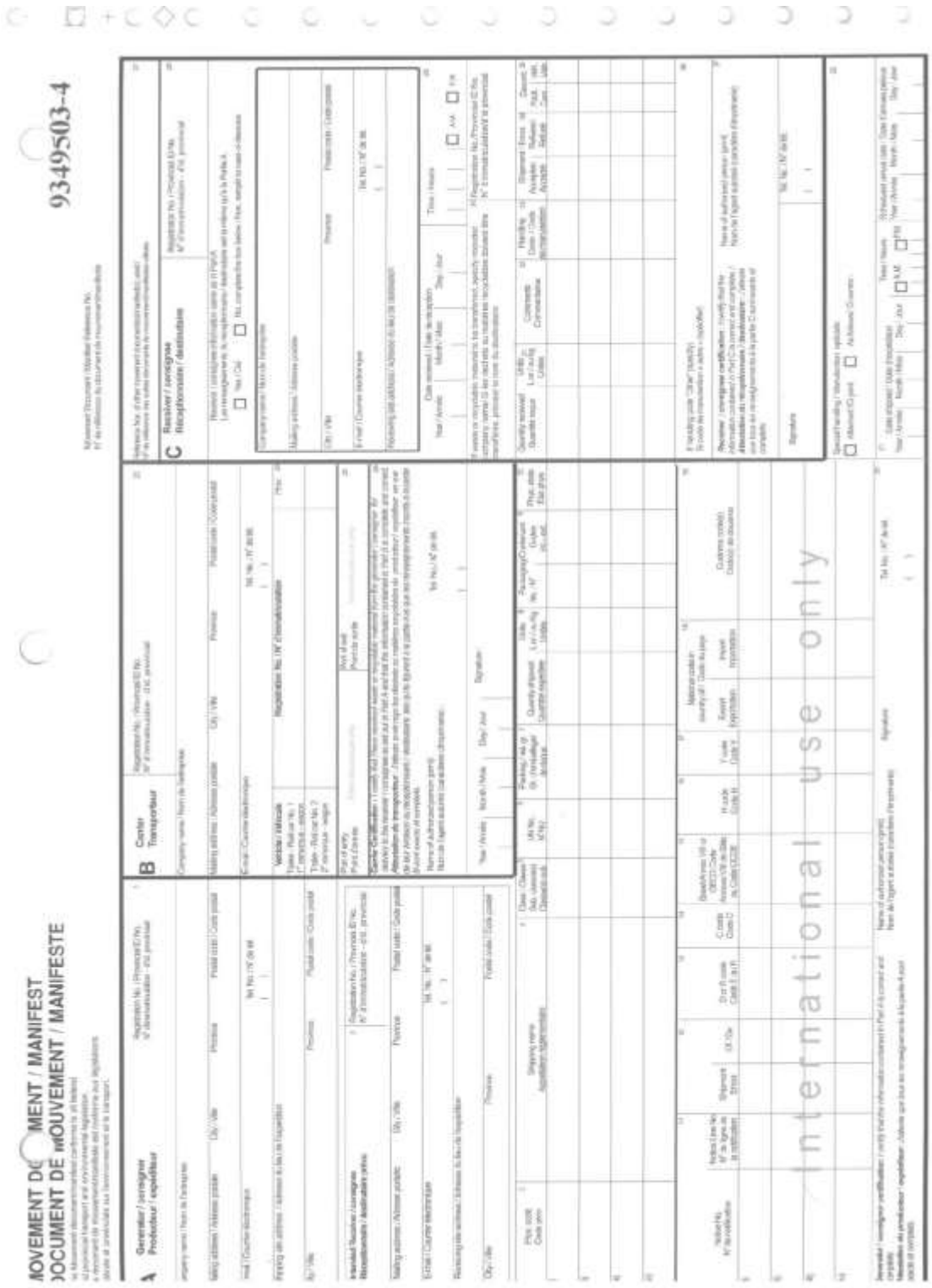
CODING BLOCK FOR 12 – BLOC DE CODAGE 12

TYPE SERVICE	BALE BALLE	BUNDLE BALLOT	CARTON CAISSE	CASE BOÎTE	CONTAINER RÉCIPIENT	CRATE-CAISSE CLAIRE-VOIE	ENVELOPE ENVELOPPE	PALLET PALETTE	TRI-WALL CRATE CARTON TRIPLE	OTHER AUTRE
CODE	BAL	BUN	CTN	CSE	CTR	CRT	ENV	PAL	TWI	OTH

Design: Forms Management 613-993-4052
Conception : Gestion des formulaires 613-993-4052

Consignee Destinataire 1

Example of DND Form 690 - Consignment Authorization and Receipt Form (CARF).



Example of the Movement Document/Manifest

APPENDIX D: Spill Report Forms

8 Wing/CFB Trenton Hazardous Material Spill Response and Reporting Form

1. Spill reported by:	**Name & Initials:**	**Phone #:**	**Unit**:
2. Spill Occurrence - Date:		**Spill Start Time:**	**Spill Stop Time:**
3. Source of Spill:		**Location of spill: (reference to a geographical location)**	
4. a. Hazardous Material Spilled:		**b. Quantity Spilled (Litres/Kg):** **Quantity Recovered:**	
c. Weather conditions (snow -rain – dry)		**d. Spill clean up completion time:** **Spill cleaned up by:**	
5. Cause of Spill (be brief):			
6. Effect(s) of Spill (be brief):			
7. Distance (in meters) from point of release to nearest:			
a. Water Well:		**c. Catch Basin or Drain**:	
b. Property Boundary:		**d. Surface water course (i.e. creek, Bay, etc)**:	
8. Details of action, taken or proposed, to mitigate effects of spill:			
8. Internal/External agencies notified.			
10. Off -Base agencies that responded to spill:			

11. Aircraft Fuel Jettisons

a. Tail # and Call Sign:	
b. Type of fuel	c. Quantity jettisoned (lbs):
d. Altitude of jettisoning (m):	e. Ground temperature during jettisoning (^{o}C):
f. Duration of fuel jettison (min):	g. Aircraft velocity during jettisoning (Kt/hr):
h. average wind speed between ground level and jettisoning altitude (kt/hr):	i. Wind orientation (relative to aircraft) during jettisoning (parallel/not parallel):

NOTE: Forward this report to Wing Environment Officer (WEnvO) within 24 hours of spill, fax # 613-965-3368. Contact WEnvO if questions regarding completing the report, ext 3930 or 613-965-3930.

Example of the DND 8 Wing Spill Report Form.

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 ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		
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 ☐ ILA ☐ 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			

PAGE 1 OF ____

Example of the NT-NU Spill Report Form.