GWICH'IN
LAND AND WATER
BOARD

105 Veterans Way,
P.O. Box 2018, Inuvik, NT X0E 0T0

Tel: 867-777-4954 **Fax: 867-777-2304**
www.glwb.com

July 17, 2020 **G20H006**

GLWB DISTRIBUTION LIST sent via email

RE: Request for Comments – Application for Type "A" Land Use Permit Renewal
(GNWT INF – James Creek Highway Maintenance Camp)

Please be advised that the Government of the Northwest Territories Department of Infrastructure (GNWT INF) has applied to the Gwich'in Land and Water Board (GLWB) for a one-year renewal of its Type A Land Use Permit for the Dempster Highway Maintenance Camp at James Creek (activities include fuel storage, worker camp, and associated facilities). Existing Land Use Permit G13H004 expires on August 11, 2020.

GNWT INF has indicated that due to the COVID-19 state of emergency, it faced challenges in gathering information and conducting pre-application engagement for the project, and would be unable to fulfill the requirements of a new application prior to the expiry of its existing authorization. It has therefore requested that the GLWB extend the terms and conditions of G13H004 (with no change in scope to operations) for one year, to allow time to conduct adequate engagement and complete the necessary bio-physical assessments of the project area

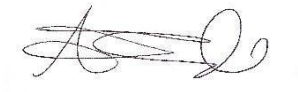
The GLWB is considering this application and invites reviewers to provide comments and recommendations.

The attached materials (which were submitted with the original application in 2013) and the Draft Land Use Permit are also available through the Online Review System (ORS). Comments can be made directly through the ORS or submitted to the Board via fax, mail or email. **Please submit your comments in writing by 5:00 pm, Friday July 31, 2020.**

Note that all documents pertaining to this file will be maintained on the GLWB Public Register.

Please do not hesitate to contact me at amacdonald@glwb.com should you have questions or comments pertaining to this request.

Sincerely,



AlecSandra Macdonald
Regulatory Specialist

July 16, 2020

VIA EMAIL

AlecSandra Macdonald
Regulatory Specialist
Gwich'in Land and Water Board
105 Veterans Way, P.O Box 2018
Inuvik, NT X0E 0T0

Dear Ms. MacDonald:

Land Use Permit Extension: G13H004 - James Creek

The Department of Infrastructure (INF), Government of the Northwest Territories (GNWT), is seeking a one year extension to the Land Use Permit (LUP) G13H004 - James Creek Highway Maintenance Camp & Fuel Storage; this permit is expected to expire on August 10, 2020. As you know, the COVID-19 public health emergency has triggered a number of logistical challenges, in particular when applying for and meeting the information requirements for new permit. However, despite this global health crisis, it is essential that INF continue its ongoing highway operations and maintenance activities to ensure that NWT Highway #8 is safe for public use.

INF is requesting the Gwich'in Land and Water Board (GLWB) extend the terms and conditions of existing LUP G13H004 with no change in scope to operations, for one year. Until such time that INF can engage in-person with communities and other potentially affected groups, INF believes that a one-year extension deferral for re-application of the permit is reasonable.

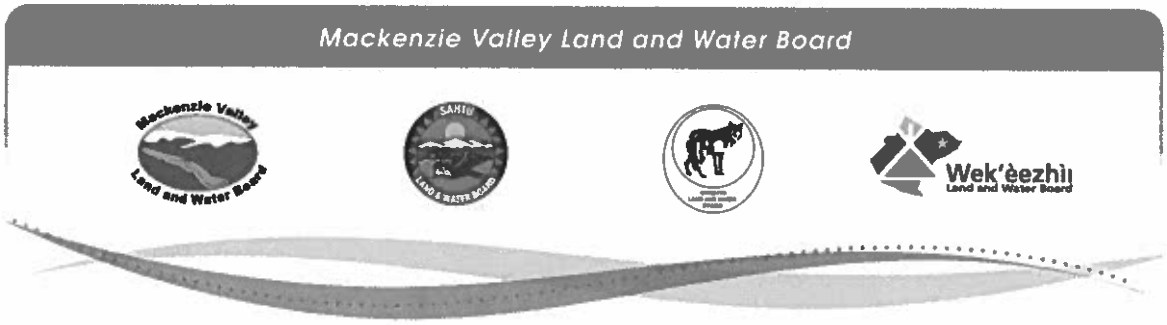
As you have advised, we have enclosed the following documents for the GLWB consideration:

1. Water Licence application (new)
2. Image of the location (existing)
3. Spill Contingency Plan (existing)

If you have any questions or require additional information please contact Jon Posynick via email at Jon_Posynick@gov.nt.ca.

Sincerely,

Jon Posynick
Environmental Analyst
Design and Technical Services
Department of Infrastructure



LAND USE PERMIT APPLICATION FORM

Subsection 19(2) and Schedule 2 of the Mackenzie Valley Land Use Regulations

Use an "x" to indicate which Board the Application is being made to:	Mackenzie Valley Land and Water Board:		Sahtu Land and Water Board:	
	Wek'èezhìi Land and Water Board:		Gwich'in Land and Water Board:	X

To complete this Form, please refer to the MVLWB Guide to the Land Use Permitting Process (Guide) and fill in the grey fields; attach additional pages if necessary. Please review the following guidance for formatting your Application Package:

- *Document Submission Standards*
- *Standard Outline for Management Plans*

If applicable, reference the existing or current Land Use Permit file number:	G13H0004		
Use an "x" to indicate if this Application is accompanied by an Application for a Water Licence:		Water Licence – in a non-federal area:	
		Water Licence – in a federal area:	

1. NAME AND CONTACT INFORMATION – APPLICANT

Applicant's Name:	Jahangir Hossain		
Position:	Regional Manager, Highway Operations, Department of Infrastructure, GNWT		
Mailing Address:			
Community:	Inuvik	Telephone:	867-777-7314
Prov/Terr:	NT	Email:	jahangir_hossain@gov.nt.ca
Postal Code:	X0E0T0	Other:	

2. NAME AND CONTACT INFORMATION – APPLICANT'S HEAD OFFICE

Please include a Certificate of Corporate Registration from the Government of the Northwest Territories in your Application Package.

Name:	Government of the Northwest Territories - Department of Infrastructure		
Mailing Address:			
Community:			
Prov/Terr:		Telephone:	
Postal Code:		Email:	
Field Supervisor:		Other:	

3. NAME AND CONTACT INFORMATION – CONTRACTORS AND SUB-CONTRACTORS

Please include relevant names, responsibilities, and contact information. An additional table should be added for each contractor and subcontractor.

Name:	Leslie J. Blake		
Company Name:	L.J's Septic Services & Contracting Ltd.		
Mailing Address:	4 Industrial Road, PO Box 151 Fort McPherson, NT X0E 0J0		
Community:	Fort McPherson	Telephone:	867-952-2901
Prov/Terr:	NWT	Email:	ljcontracting@hotmail.com
Postal Code:	X0E 0J0	Other:	

4. LOCATION OF ACTIVITIES

Maps and Geographic Information System (GIS) Data: Attach a map to your Application Package indicating the locations of proposed activities, including waste deposits, watercourses, and water sources. Provide latitude and longitude geographic coordinates of project features, and the maximum and minimum project boundary in degrees, minutes, seconds, or decimal degrees. Attach GIS data to your Application Package, if applicable. Refer to the MVLWB *Guideline for Geographic Information Systems (GIS) Submission Standard* for providing geographic information.

Minimum latitude:	67°08'30" N – General Location	Maximum latitude:	135°59'53" W – General Location
Minimum longitude:	n/a	Maximum longitude:	n/a

NTS Map Sheet No.: Provide the map sheet number: 106M04 - Boomerange Lake

Land Types: Use an "x" to indicate the type(s) of the land on which the activities are proposed.

Free Hold/ Private:		Commissioner's/ Territorial Lands:	X	Federal Land:		Municipal Land:	

5. ELIGIBILITY

Please refer to section 18 of the Mackenzie Valley Land Use Regulations. Use an "x" to indicate which one applies.

18(a)(i):		18(a)(ii):		18(a)(iii):		18(b):	x

6. RIGHTS AND/OR CONTRACTS TO SUPPORT ELIGIBILITY

Please contact federal, territorial, and Aboriginal governments, and other parties to ensure all appropriate rights, authorizations, permissions, dispositions, and contracts have been obtained or are in the process of being obtained (e.g. mineral exploration rights, quarry permits, licences of occupation, leases, access agreements and authorizations, etc.). List and provide confirmation of other authorizations that relate to your activities; include these to your Application Package (e.g. rights, permits, licences, etc.).

This location is administered through the Transfer of Inter-Territorial Roads Program from the Government of Canada to the Government of the Northwest Territories - Transfer Agreement May 8, 1990, for the specific purpose of the maintenance and operations of Highway #8. Access to this area has been used for decades and is being improved and maintained in perpetuity.

7. PERMIT TYPE AND CRITERIA

Please refer to sections 4 and 5 of the Mackenzie Valley Land Use Regulations. Use an "x" to indicate which permitting criteria apply:

Type A				Type B				Type C	
4(a)(i):		4(b)(i):		5(a)(i):		5(b)(i):		(SLWB and WLWB only):	
4(a)(ii):		4(b)(ii):	x	5(a)(ii):		5(b)(ii):			
4(a)(iii):		4(b)(iii):	x	5(a)(iii):					
4(a)(iv):		4(b)(iv):		5(a)(iv):					
4(a)(v):				5(a)(v):					
				5(a)(vi):					

8. PROJECT DESCRIPTION

Please include your project description in your Application Package, or for small-scale projects, describe your proposed activities in the grey field provided below. Include the elements identified in subsection 19(3) of the Mackenzie Valley Land Use Regulations, the name and type (e.g., lake, river) of water source(s), and the purpose and quantity of water to be used (rates, volumes (m^3/day)). Indicate the total number of hectares to be used in each phase of the project, as well as through the life of the project.

Please see attached project description - same in scope as previous application.

9. CAMP

Please describe the proposed camp size and layout. Indicate the number of person-days; explain, with rationale, any variations in the number of people that may be on site over the life of the project.

Camp details: Residents for up to ten (10) maintenance workers in two (2), eight-bedroom accommodation trailers, or at times other guests overnight in these accommodations.

10. ROADS AND ACCESSES

Please include detailed information about the construction, location, and decommissioning of any roads and accesses.

Use an "x" to indicate if this is to be a pioneered road or access.	Yes		Use an "x" to indicate if the route has been laid out or ground-truthed.	Yes	
	No	X		No	X

This location is administered through the Transfer of Inter-Territorial Roads Program from the Government of Canada to the Government of the Northwest Territories - Transfer Agreement May 8, 1990, for the specific purpose of the maintenance and operations of Highway #8. Access to this area has been used for decades and is being improved and maintained in perpetuity.

11. WASTE MANAGEMENT METHODS

Please use the grey fields below to provide or reference the following information:

Waste Management Plan: Include your Waste Management Plan in your Application Package, if applicable, or for small-scale projects, describe the proposed waste management activities in the grey fields provided below. A template for the Plan can be found in the MVLWB *Guidelines for Developing a Waste Management Plan*.

Waste Type	Management Method(s)
Garbage:	Hauled to an approved facility
Sewage (Sanitary and greywater):	Hauled to a municipal treatment lagoon
Brush and trees:	n/a
Overburden (Organic soils, waste material, etc.):	n/a

Off-site Disposal: If waste is proposed to be disposed of off-site within the NWT, written confirmation (e.g., an email, letter, etc.) from the facility/facilities indicating they will accept the waste is required. Include it/these in your Application Package.

Fort McPherson Nusiance Grounds

12. EQUIPMENT

Please identify the types of equipment proposed to be used.

Number	Type/Description	Size (weight in tonnes)	Proposed use
D6,D7,D8	Bulldozer	20,449 Kgs	Snow Ploughing / Earthworks
Cat 14G, 140	Grader	33,356 Kgs	Highway Blading / Snow Ploughing / Overflow Rectification
3 tonne	Pickup Truck	5,268 Kgs	Transportation
16m3	Dump Truck	26,853 Kgs	Material Hauling
966F	Loader	10,000 Kgs	Loading
Cat 322L	Excavator & Snow Blower	25,000 Kgs	Snow Removal

13. FUEL

Please identify all fuel types proposed to be used.

Type of Fuel	Number of containers	Capacity of containers (e.g., litres, pounds)	Type of container (barrel, tank, tidy-tank)	Proposed storage or staging location(s)
Diesel:	1	90 000L		James Creek Camp
Gasoline:				
Aviation Fuel:				
Propane:				
Other: (describe)				

14. METHODS OF FUEL TRANSFER

Please describe the proposed methods to transfer fuel.

Fuel is delivered by tanker truck to on-site fuel tanks, and pumps into tanks via on-board pump. Fuel from tank is dispensed with an electrical pump to equipment and vehicles.

15. SPILL CONTINGENCY PLAN

Please include your Spill Contingency Plan in the Application Package, if applicable, or for small-scale projects, provide relevant details in the grey field provided below. An example of a Plan can be found in the INAC *Guidelines for Spill Contingency Planning*.

Please see attachment for complete spill contingency plan. There has been no change in scope from previously submitted plan.

16. PROPOSED TIME SCHEDULE

Indicate the proposed project start and completion dates and the time of year the project activities are planned to occur. Describe any anticipated temporary closure(s) or seasonal shutdowns. Refer to subsections 26(5) and (6) of the Mackenzie Valley Land Use Regulations; indicate the term requested.

Start Date:	August 12, 2013	Completion Date:	Undetermined (Perpetual)
Term of Permit Requested:	1 year extension (due to covid-19 circumstances)		

17. POTENTIAL ENVIRONMENTAL IMPACTS OF THE PROJECT AND PROPOSED MITIGATIONS

Please use the grey field below to provide or reference the following information:

Preliminary Screening: Describe all potential impacts and proposed mitigations. This information is used for the preliminary screening of potential impacts from the project and/or to develop conditions for the land use permit. Please indicate whether any of the mitigation measures have been developed as a result of input from affected parties. Additional guidance is provided in *Appendix B of the MVLWB Guide to the Land Use Permitting Process*, the *Mackenzie Valley Review Board Environmental Impact Assessment Guidelines*, and the *Mackenzie Valley Review Board Socio-Economic Impact Guidelines*. Alternatively, if you are seeking an exemption from preliminary screening, provide supporting rationale.

Wildlife Management and Monitoring Plan: Applicants are encouraged to contact the Wildlife Division of the Government of the Northwest Territories – Environment and Natural Resources, prior to applying, to determine whether a Wildlife Management and Monitoring Plan may be needed.

18. CLOSURE AND RECLAMATION

Please use the grey field below to provide or reference the following information:

Closure and Reclamation Plan: Describe your plans for closure and reclamation, including any temporary closure(s) and seasonal shutdowns. Include your Closure and Reclamation Plan in your Application Package, if applicable, or for small-scale projects, describe the proposed activities in the grey field provided below. Please also refer to the MVLWB/AANDC *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories.*

Closure Cost Estimate: Prepare a Closure Cost Estimate and include it in your Application Package. Applicants are encouraged to contact the Board, prior to applying, to determine which closure-cost-estimate template is most suited to the activities being applied for. Guidance is provided in section 2.2 of the MVLWB/INAC/GNWT *Guidelines for Closure and Reclamation Cost Estimates for Mines*. If your Application is submitted concurrently with a Water Licence Application, please ensure water- and land-related activities and liabilities are provided.

The Department of Infrastructure will be applying for a new Land Use Permit for this site when this extension deferral is completed.

19. ADDITIONAL SUPPORTING INFORMATION

Please use the grey field below to provide or reference the following information:

Engagement: Conduct engagement, prepare an Engagement Record and Engagement Plan in accordance with the MVLWB *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits,* and include them in your Application Package. Templates are provided in the Guidelines. Please also refer to *Information for Proponents on MVLWB's Engagement Requirements*.

Land Use Planning: Please contact the applicable Land Use Planning Board or Tłı̨chǫ Government to discuss conformity with the relevant land use plan(s). Attach your Land Use Plan Conformity Table that demonstrates how the project meets the requirements of the Land Use Plan, if applicable.

Traditional (Environmental) Knowledge (TEK/TK): Provision of TEK/TK is mandatory for applications to the Sahtu Land and Water Board. Other applicants are strongly encouraged to include TEK/TK.

Studies Undertaken to Date: Please list any relevant studies that support the proposed activities and include them in your Application Package.

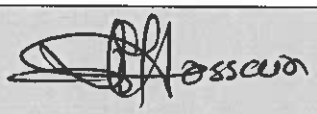
20. FEES

Please refer to section 20 of the Mackenzie Valley Land Use Regulations.

Type of Fee	Amount ($)
Application fee:	
Land-use fees (for federal areas only):	
Total Fees:	n/a

21. SIGNATURE

JAHANGIR HOSSAIN	Regional Manager Highway Ops.
Applicant's Name (print) or Company Name	Position (print)

	July 09, 2020
Signature	Date

Please submit completed applications to the Regulatory Manager or Executive Director at the respective Land and Water Board (www.mvlwb.com, www.wlwb.ca, www.slwb.com, www.glwb.com).

Project Information

James Creek Highway's Maintenance Camp

Environmental Information Report

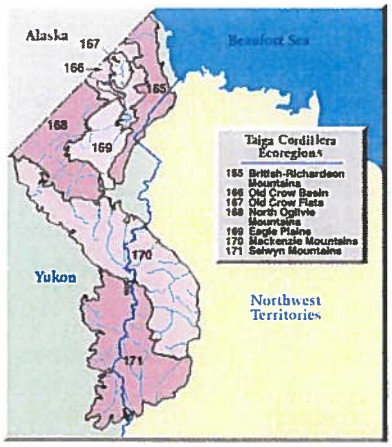
Introduction:

The Department of Transportation is continuing the operation of the James Creek Highway Maintenance Camp and Fuel Storage Facility. The purpose of the project is to deliver transportation services to the region, create safe road conditions for travellers and maintain government assets for the operation and maintenance of an inter-territorial Highway System.

SECTION A:

Physical Description of the James Creeks Area

Geology and Geography



The area surrounding James Create is classified Taiga Cordillera Ecozone. It is a mountainous with shallow rivers meandering through rock walls, broad windswept uplands dominated by alpine and arctic shrubs and flowers, plus vast wetlands and spruce-lined valleys that support many kinds of wildlife. Covering the Yukon-Northwest Territories border, this ecozone contains the northernmost arc of the Rocky Mountain chain. To the northwest are expansive wetlands and rolling hills that stretch to the Beaufort coast. Treeless arctic tundra dominates its northern reaches and gives way to a mix of alpine tundra and lowland forests farther south. "Cordillera" refers to the series of mountain ranges and valleys that form this ecozone's rugged interior. The diverse habitats, from valleys to mountain support a wide range of mammals, including two kinds of caribou and bears. The birds that nest here include a mixture of species typical of the Arctic and Subarctic, as well as eastern and western Canada. The climate is extremely cold and humid, with long, dark winters and short, cool summers. Precipitation is low to moderate, averaging from 250 to 300 mm a year across much of the ecozone. Snow and freshwater ice-cover persist for six to eight months annually.

Terrain and Soils

The Tundra Cordillera Ecozone is characterized by steep, mountainous terrain consisting of a series of sharply etched ridges and narrow valleys. Other features include rolling foothills, upland plateaus, and low-lying basins. The geological history of this region began about half a billion years ago. Rivers flowing off the protocontinent deposited sand, mud, and gravel on this platform, creating the sandstones, mudstones, and shales that make up much of the area's abundant sedimentary rocks (limestone and dolomite). Since then, these rocks have undergone slow but sure destruction by a variety of erosive forces: glacial ice sheets that engulfed much of the region several times over the last few million years; streams and rivers carved down through

the high plateaus and mountains; and the simple action of gravity, which causes mountains to gradually collapse. Some of the most unusual landscapes are, however, now near the Beaufort Sea. These areas escaped glacial scour. The cyclic freezing and thawing action of permafrost-rich soils enhances these processes of disintegration. The resulting polygon and stripe-like patterns often seen in alpine areas attest to the dynamic state of this ecosystem.

Plants

Types of plants in this ecozone and the rate of their growth are strongly influenced by their position on mountain slopes, which determines the amount of available soil moisture and sunlight. Western slopes often have more luxuriant plant cover than eastern ones, since clouds deposit most of their moisture on western slopes before continuing east. Similarly, northern and southern mountain slopes show pronounced differences in plant growth because of differences in the amount of sunlight they receive. South-facing slopes tend to be warmer and drier, conditions that favour soil nutrient release and plant growth common in more temperate climates. Plants on north-facing slopes typically include species better adapted to cold climates.

Four main vegetation zones are found in this ecozone. Extensive areas of alpine tundra occur on the upland plateaus and highest mountain slopes. Here, scattered among lichens, sedges, and mosses are species that typically possess very large flowers relative to the rest of the plant. Their function is to attract insect pollinators during the short growing season.

Further downslope is the subalpine transition zone, which is dominated by scattered Alpine Fir trees and a dense understory of Willow and Shrub Birch. White and Black Spruce replace firs in the lower parts of this zone. Below the subalpine zone on the lower flanks of the mountains is the montane zone, characterized by spruce-lichen woodlands and flat benches of Lodgepole Pine.

Birds

Some of the characteristic birds of prey are gyrfalcon, golden eagle, bald eagle, osprey, northern goshawk, boreal owl, short-eared owl, red-tailed hawk, northern harrier, American kestrel, and merlin. Shorebirds and seabirds that are found here include spotted sandpiper, common snipe, wandering tattler, herring gull, and mew gull. The songbirds of the Taiga cordillera include common redpoll, rusty blackbird, gray-cheeked thrush, tree swallow, dark-eyed junco, varied thrush, raven, white-winged crossbill, Lincoln's sparrow, Townsend's solitaire, water pipit, violet-green swallow, and gray jay. Waterfowl such as Canada geese, northern pintail, mallard, canvasback, and arctic loon are found here. Ruffed grouse, spruce grouse, northern flicker, willow ptarmigan, rock ptarmigan, and white-tailed ptarmigan are some of the birds of the forest.

Amphibians and Reptiles

The Taiga Cordillera is too far north for amphibians and reptiles.

Fish

Predators such as the northern pike feed on species including lake whitefish and lake chub. Chinook salmon and chum salmon come in from the ocean to spawn.

Mollucscs

Two of the mollusc species found in this ecozone are the muskeg stagnicola and arctic-alpine fingernail clam.

Mammals

Because of its diversity of habitats, from dense spruce forests to arctic tundra, from alpine mountain peaks to marshy flats, the Taiga Cordillera Ecozone includes a wide array of wildlife species representative of both arctic and temperate climates. Mammals most common in alpine terrain include the American Pika, Hoary Marmot, Grizzly Bear, and Dall's Sheep. Mountain Goats, which are not really goats at all but members of the antelope family, are found on mountains in southern regions. During the spring and summer, alpine habitats are populated with several tundra-adapted birds, such as the White-tailed Ptarmigan, Horned Lark, and Water Pipit. Woodland Caribou, Lynx, Marten, and Black Bear are common mammals of the lower forested habitats. Common birds in this zone include the White-winged Crossbill, Varied Thrush, and Gray Jay. River and wetland habitats support several waterfowl species, including Canvasback, Common Golden-eye, Mallard, and the rare Trumpeter Swan. The Yukon's Old Crow Flats represent only a small part of this ecozone, yet it is a large and notable wetland that has received international recognition. Swans, Canada Geese, and other species nest or stage here each year in the tens of thousands. Another wildlife spectacle is the annual migration of the Porcupine Barren-ground Caribou, a herd of more than 150 000 animals that winters in the northwestern woodlands.

Evidence of this ecozone's wild and unspoiled character is Canada's largest concentration of Wolverines, a species that has been called a true wilderness creature. Like other members of the weasel family, this solitary nomad is curious, bold, and strong. It will fiercely defend its food against the attack of animals many times its size. Renowned for evading traps and robbing the most carefully protected caches of food, the Wolverine plays a leading role in the camp-fire tales of this region. About fifty species of mammals in total are found here.

Species at Risk

The Department of Environment and Natural Resources, Government of the Northwest Territories identifies a number of species that are either threatened or of special concern with ranges within which the proposed bridge construction project is located. Table 2, below, lists these species and their classification as described in the 2010 Edition of *Species at Risk in the Northwest Territories*.

Table 2: Species at Risk

Status in NWT		Gwich'in Region		Status in Canada	
		SARC Assessment	NWT List of Species at Risk	COSEWIC Assessment	Federal *Species at Risk Act* list
MAMMALS	Collared Pika	N/A	No Status	Special Concern	No status
	Grizzly Bear (Western population)	N/A	No Status	Special Concern	No status
	Wolverine (Western population)	N/A	No Status	Special Concern	No status
	Woodland Caribou (Boreal population)	Threatened	No Status	Threatened	Threatened
	Woodland Caribou (Northern Mountain population)	N/A	No Status	Special Concern	Special Concern
BIRDS	Horned Grebe (Western population)	N/A	No Status	Special Concern	No status
	Olive-sided Flycatcher	N/A	No Status	Threatened	Threatened
	Peregrine Falcon anatum-tundrius complex**	N/A	No Status	Special Concern	No status
	Peregrine Falcon subspecies anatum**	N/A	No Status	Threatened	Threatened
	Rusty Blackbird	N/A	No Status	Special Concern	Special Concern
	Short-eared Owl	N/A	No Status	Special Concern	Schedule 3
FISHES	Dolly Varden (Western Arctic Population)	N/A	No Status	Special Concern	No Status

Table 1: Species Risk Assessment for selected species listed in the NWT SAR Table for the Gwich'in Region

Species/Ranking	Extreme	High	Moderate	Low
Collared Pika			X	
Caribou (Boreal)				X
Bear (Grizzly)			X	
Wolverine				X
Snowshoe Hare				X
Raptors				X
Ptarmigan				X
Songbirds				X
Waterfowl				X
Shorebirds				X

Description of the Undertakings:

Timeframe

This continued operation will take place indefinitely. As the land use permit period is a maximum of seven years (five years with a two year extension), the default duration is August 2013 to August 2020

Vegetation Removal

Vegetation will not be removed.

Mobilization

All required equipment is onsite and mobilization will not be necessary, nor will existing operation exceed the current footprint. Should mobilization be required to expand the existing developed area the GLWB will be notified and in the case of a scope change and the proper amendments/ permits will be acquired prior to development.

Sedimentation Monitoring

A developed laydown and equipment pad has been in place for decades and as such the area has shown no signs of sedimentation, sediment monitoring was deemed to be unnecessary.

SECTION B: PHYSICAL / CHEMICAL EFFECTS

Ground Water

Mitigations for impacts to ground water include a Fuel Transfer Best Management Practice document and an updated Fuel Spill Contingency Plan

Impacts to Surface Water Quality

The O&M work is will not to have an impact on water flow and surface water quality. Potential negative impacts should be minimal if management is consistent with fuel transfer protocols and spill contingencies. The streambed of natural stones won't be disturbed. There will be no long direct term effects on water quality, stream flow, and/or fish habitat since the operation does not involve in-stream works.

Fuel Spills and Leak Assessments

The work will involve heavy equipment; therefore there is always a chance that spills can occur. Diesel fuel and other combustible fluids will be used on the job site during the operation of heavy machinery. Fuel will be transported by truck from a local fuel station to the site. Whenever fuel is used there is a risk of spill during refueling and transportation of petroleum products. Fuel Spills could occur at the following times:

a. *Transfer of the fuel from the fuel truck to the machinery*
b. *As a result of leakage from working machinery*
c. *As a result of an accident (e.g. fuel truck en route to or from the work site)*

A BMP for fuel transfer and management and spill contingency plan will include an assessment for these potential incidents, formalize an appropriate response and offer mitigation procedures for facility inspections.

Direct Spill Impact Mitigations

Fuel will be stored away from the site; 100m outside of the ordinary high water mark. Vehicles will be refueled in a designated area, at least 100 meters beyond the high water mark. Drip trays will be used where there is potential for small leaks and spills during extended vehicle

storage periods. Fuel and hazardous materials will be subject to the Spill Contingency Plan. All contractors will be briefed on the Spill Contingency Plan. A copy of the plan will be on the work site at all times.

Storage of materials

Construction Materials, Heavy Equipment and Camp related materials will be stored on site

Mitigations

All materials will be stored safely on-site, and will be 100m away from the ordinary high water mark. A fuel transfer best practices plan will form part of the operations and a fuel spill contingency plan is in place. Existing monitoring wells will be sampled twice annually (Freshet and Prior to Freeze up) and follow testing parameters established under the previous land use permit

Noise

Construction activity will generate a medium amount of noise during the project due to the use of Heavy Equipment and on-site power generation.

Land

The land is held and controlled by the Department of Transportation - Northwest Territories through the Transfer of Inter-Territorial Roads Program form the Government of Canada to the Government of Northwest Territories (represented in the agreement by the Department of Transportation.

Non-Renewable Resources

There will be no impact on non-renewable resources.

Air/Climate/Atmosphere

There will be localized, low level, transient impacts from equipment operation (exhaust) during the project but are not a regulatory concern and do not require additional authorizations.

Deposition of Waste

All construction waste will be transported away from the site and disposed of in the local landfill consistent with normal Department of Transportation operations.

SECTION C: BIOLOGICAL ENVIRONMENT

Wildlife Habitat

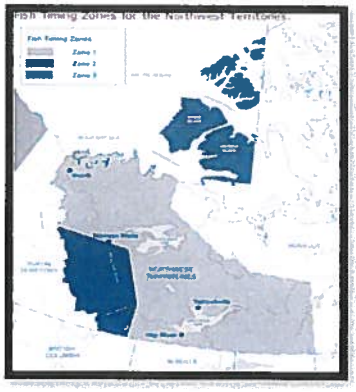
No long-term or permanent impacts on the habitat and wildlife population communities in the area are anticipated.

Vegetation

The area around the project site is completely vegetated (mosses and lichens) with the exception of the areas cleared for the road allowance and laydown areas in use. The taiga cordillera surrounds the project area and short shrubbery, weeds, and grasses are prevalent in and around the banks of James Creek.

Fishery and Fish Habitat

Currently local fishermen are not known to set nets on James Creek at this location. The creek is shallow and low energy for much of the year. Although the creek has a road access to the edge of the stream, no fording of James Creek will take place during this project incidental use of the stream for dust suppression happens periodically but water volumes are significantly less than what requires a water licence. All Department of Fisheries and Oceans Water withdrawl operational statement protocols are observed. The Department of Fisheries and Oceans lists Zone 1 "timing windows" for fisheries affected in ZONE 1 (largest zone of the NWT identified by DFO). However, no in-water work will take place in open water conditions without direct authorization from Department of Fisheries and Oceans.



SECTION D: Interacting Environment

Social and Economic

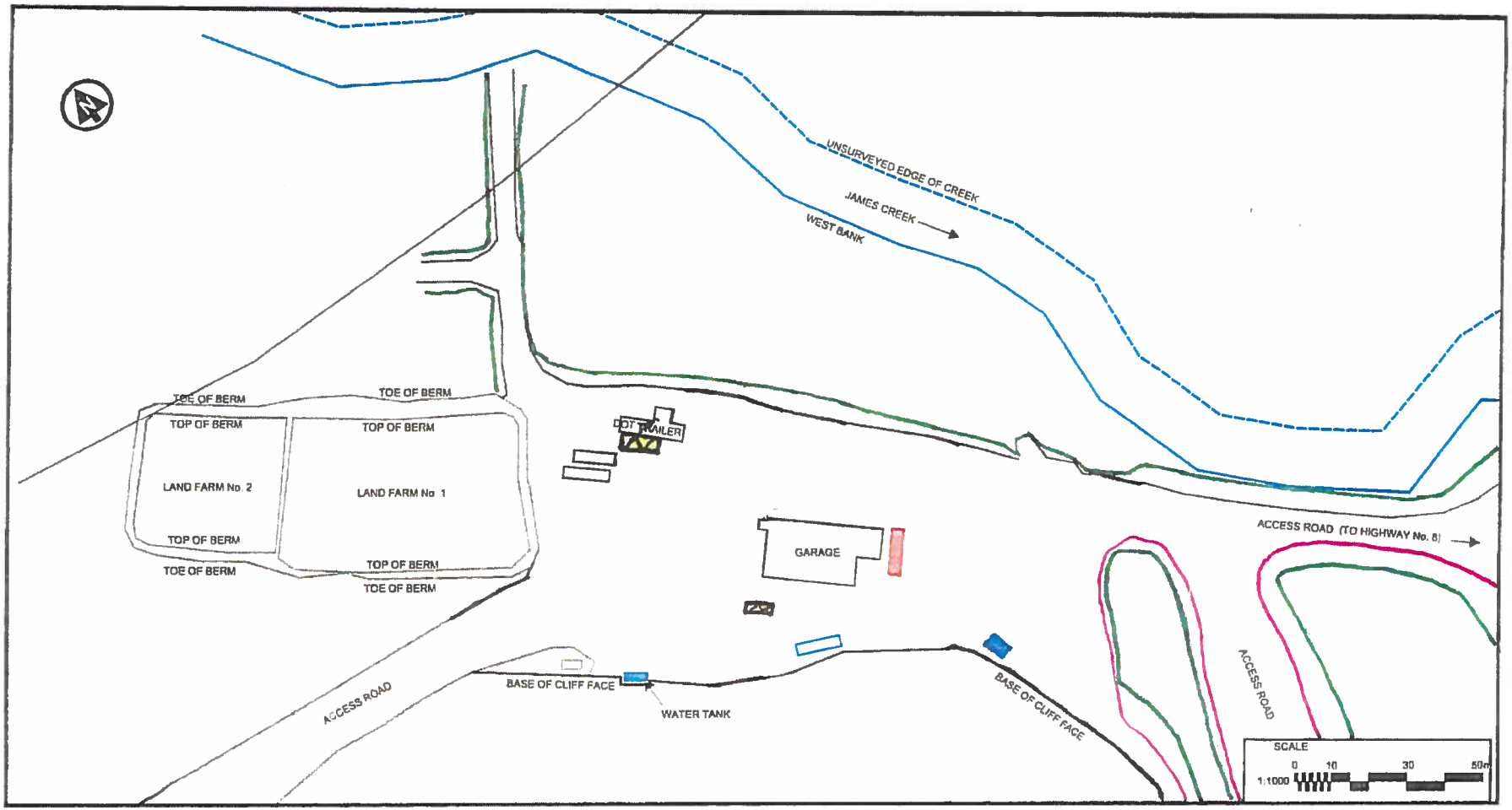
The site has been used for decades and has demonstrated little potential to disrupt traditional aboriginal use or occupancy. James Creek Highway's Maintenance Camp has provided steady employment and contract work for residents of Ft. McPherson where the population is predominantly Gwich'in and employment for other residents from the region who travel to James Creek from as far away as Inuvik (seasonal).

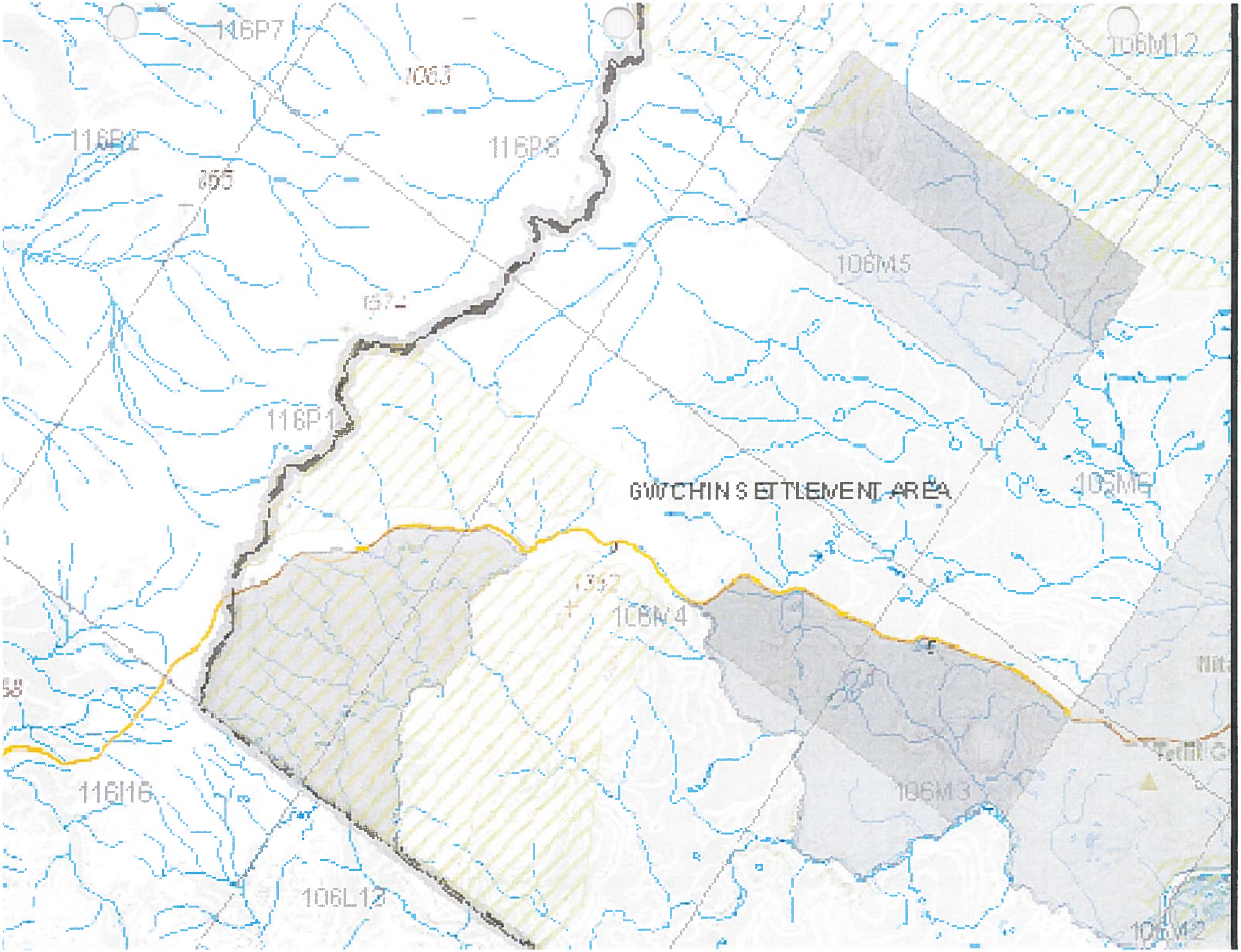
Cultural and Heritage

The area has been historically used as a water source by the Tetlit Gwich'in First Nation.

SECTION E: SUMMARY AND CONCLUSIONS

While there is some small potential for very minor sedimentation of James Creek after the spring melt, this is not expected to affect Fish or Fish Habitat, Wildlife, Water Quality or Soil destabilization. The soil is course to rocky and the physiography is Glacio-fluvial, therefore erosion caused by the Land Use is of low concern. Existing residual contamination beneath the garage is not a threat to James Creek since the hydrocarbon is isolated and not impacting the waterway (Oxy Technologies, March 28 2013 Final Remediation Pre-Treatment Assessment Report – Executive Summary and Hydrogeological/ Hydrological Assessment Attachment)


UNSURVEYED EDGE OF CREEK
JAMES CREEK
WEST BANK
TOE OF BERM
TOP OF BERM
LAND FARM No. 2
LAND FARM No. 1
TOP OF BERM
TOE OF BERM
TOE OF BERM
TOP OF BERM
TOE OF BERM
DOT TRAILER
GARAGE
ACCESS ROAD (TO HIGHWAY No. 8)
ACCESS ROAD
ACCESS ROAD
BASE OF CLIFF FACE
WATER TANK
BASE OF CLIFF FACE
SCALE
1:1000
0
10
30
50m
SEPTIC TANK
WATER TANK
FUEL TANK
EXISTING TRAILER


116P7
116P8
116P1
106M12
106M5
106M6
GWICHIN SETTLEMENT AREA
106M4
106M3
106M2
106L13
116I16

Northwest Territories Transportation

NORTHWEST TERRITORIES TRANSPORTATION

FUEL SPILL CONTINGENCY PLAN

JAMES CREEK CAMP

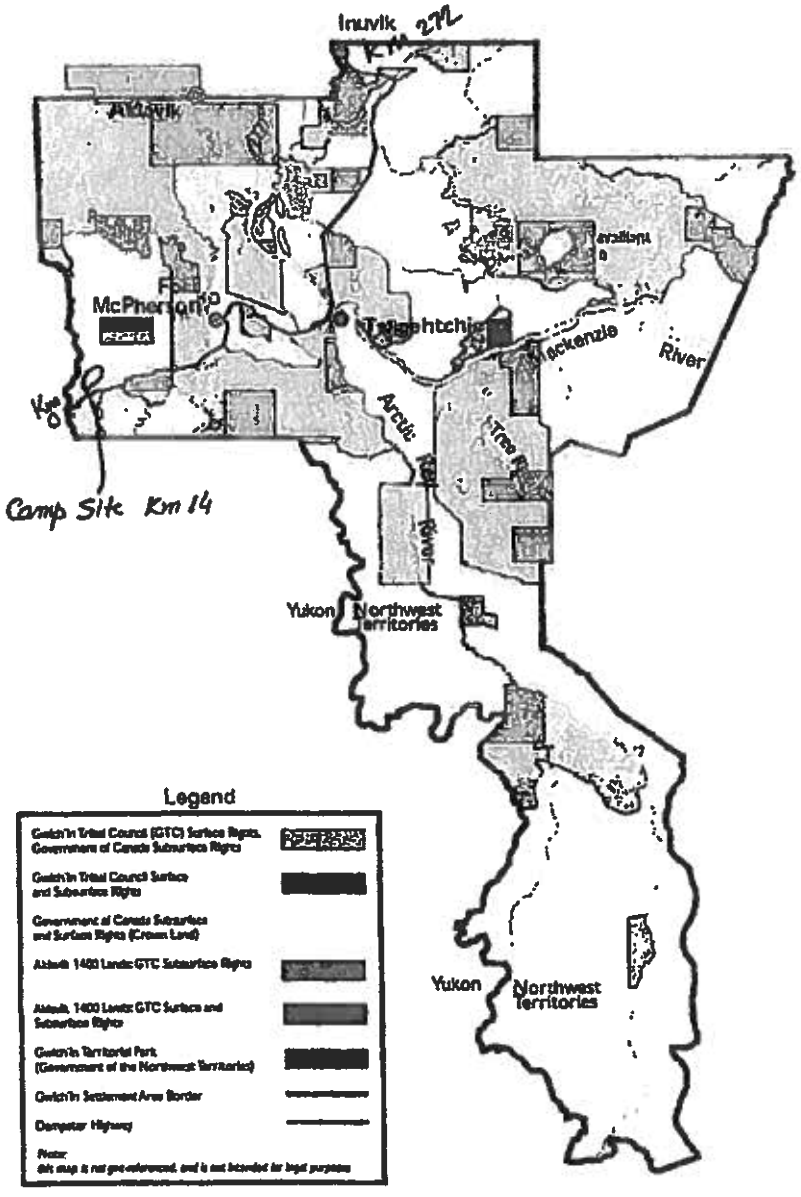
Located at Km 14 of Highway # 8

JAMES CREEK, NT

INSTRUCTIONS TO THE READER

This is a guide and not a training manual.
You should not be reading it for the first time during an actual spill.
Please familiarize yourself with this document and be prepared now.

Land Ownership
Gwich'in Settlement Area



FSCP - TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

1.0 INTRODUCTION, LEGISLATION & REGULATIONS

The Department of Transportation has determined that facilities that use or store dangerous products must have an emergency preparedness plan to account for spills and spill clean-up. The lack of emergency spill response companies in the Northwest Territories may result in increased damages to the environment in the case of a spill. To reduce the risk of environmental damage, an emergency plan will be developed to assist staff and improve existing operations. These improvements are required to respond to the needs of the Environmental Protection Act, EPA, and the Northwest Territories Spill Contingency Planning and Reporting Regulations, NTSCPRR.

Under sections 34(1) q) and r) of the EPA, the intention is to first, prevent and safeguard against a spill occurring and second, to be prepared with materials and equipment onsite to deal with a spill. Under the NTSCPRR, "any person storing contaminants in an underground storage facility with a capacity equal to or greater than 4000 litres or kilograms or any person storing contaminants in an aboveground storage facility with a capacity equal to or greater than 20,000 litres or kilograms is required to file a spill contingency plan. These quantities represent the minimum requirements for filing a Spill Contingency Plan."

The Department of Transportation, DOT, has concluded that Spill Contingency Plans shall be prepared for all facilities that store products that are defined as dangerous goods or hazardous materials under the Transportation of Dangerous Goods Act and Regulations, see Table One, Appendix F. It is DOT's intention to develop a Spill Contingency Plan that will be concerned with our most common Table One items: diesel fuel and gasoline. This 'Fuel Spill Contingency Plan' will operate as a standard in the DOT Highways Maintenance work place to improve fuel storage and handling safety with respect to the existing operational strategy, See Figure One in Appendix F.

This Fuel Spill Contingency Plan document has been written to assist DOT field staff and facility personnel deal with spill situations for diesel fuel and gasoline. It consists of six main sections and six appendices. The main sections are: 2 – Fuel Spill Contingency Plan with priorities and plan components. 3 – Prevention and the Responsible Person. 4 – the Spill Response. 5 – Spill Containment. 6 – Spill Clean-up. And 7 – Maintenance Camp Description, Equipment Inventory, Potential Spill Sources, and Training.

The six appendices supporting the main body are: A – Initial Spill Response component complete with the Initial Response Flowchart, the Emergency Spill Response Checklist, a list of emergency phone numbers, and the Fuel Spill Reporting Form. B – the Spill Containment component complete with suggested methods for berm construction and boom placement. C – the Spill Clean-up component with a suggested method for organizing the movement of people and equipment during clean-up efforts. D – Site Maps and Sketches. E – Equipment List for heavy equipment, assorted tools, materials, and spill kits. And F – Prevention component complete with reportable volumes, Spill Plan Logic and Potential Spill scenarios.

2.0 FUEL SPILL CONTINGENCY PLAN

Every work site, refuelling depot, and vehicle storage location may become a fuel spill area. Spills can be caused by:

1. an accident,
2. mechanical failure,
3. operator's error, or
4. vandalism.

The intention of this Fuel Spill Contingency Plan, FSCP, is to assist staff in being more knowledgeable with:

1. spill prevention methods,
2. spill containment, and
3. spill clean-up procedures.

2.1 OVERVIEW

This Fuel Spill Contingency Plan is a general guide for the DOT staff including: supervisors, managers, and crews stationed at the various Highway Maintenance Camps in the NWT. It will help with diesel fuel and gasoline spill problems. See Table One in Appendix F for reportable volumes of spills. Diesel and Gasoline are flammable liquids in Table One where any spilled volumes in excess of 100 litres are reportable. **All spills regardless of type must be reported to your supervisor and cleaned up.**

The logic used to show how this Fuel Spill Contingency Plan fits into the DOT operational strategy is shown in Figure 1 in Appendix F. The Fuel Spill Contingency Plan will be an essential component for an ongoing program of improvement and review. It will combine all existing fuel-handling methods with:

1. practical fuel spill prevention,
2. improved fuel spill containment, and
3. spill clean-up methods.

2.2 PURPOSE

The purpose of this Fuel Spill Contingency Plan is to improve all fuel handling activities in order to prevent spills. If a spill does occur, DOT staff will be trained to respond and to minimize any environmental damage. Experience has demonstrated that three things are necessary for the quick and effective clean-up of a fuel spill:

1. To have all key personnel trained in spill response, containment and clean-up.
2. To have an understandable, reasonable, and practical plan to deal with spills. And
3. To be properly equipped with spill containment materials and equipment, including on-site standby earth moving equipment, absorbent materials, and booms.

2.3 PRIORITIES

The goal of this Fuel Spill Contingency Plan is that the following five priorities be addressed at the time of a fuel spill.

1) **The protection of life.**
2) **To prevent and to minimize injuries.**
3) **That any environmental impacts are minimized.**
4) **That the required information is reported to the NWT Spills Hotline.**
5) **To effectively implement the resources to contain and clean-up the spill.**

2.4 COMPONENTS OF THE FUEL SPILL CONTINGENCY PLAN

The two integral components of the FSCP are:

1. The prevention of fuel spills component.
2. The spill response component to be taken upon the discovery of a fuel spill.

Both components address priorities 1, 2, and 3. The spill response component of the FSCP will address priorities 4 and 5. The spill response component is composed of the following four sections:

1. Initial Spill Response section.
2. The Spill Containment section.
3. The Spill Clean-up section.
4. The Maintenance Camp section which will detail location, facilities, potential spill locations, on-site equipment list, and staff training.

3.0 PREVENTION COMPONENT OF FUEL SPILL CONTINGENCY PLAN

The prevention of fuel spills is now expected to become a part of the standard DOT operating procedure for all camps and work areas. Each camp and work area will have an acceptable and annually updated Fuel Spill Contingency Plan in place and an assigned Responsible Person to operate and update the Fuel Spill Contingency Plan.

3.1 OVERVIEW

Common sense would indicate that the best fuel spill contingency plan is to not allow a fuel spill to occur in the first place. Spill prevention must be a large part of how we now conduct our day-to-day operations and it is unacceptable to allow any contaminants to enter into the environment and cause pollution. See Appendix F, for examples of potential and actual fuel spill scenarios and their preventative measures.

3.2 ROLES AND RESPONSIBILITIES OF THE RESPONSIBLE PERSON

The RP, Responsible Person or their designate, will be an experienced, knowledgeable, and competent person responsible for the safe, daily operations of their Camp or work area. In the event of a fuel spill incident, the RP will be responsible for setting up, and running the Emergency Spill Response shown in Section 4.1.

The RP for the James Creek Camp will be Mr. Bruce Krutko, Highway Foreman.

4.0 SPILL RESPONSE COMPONENT OF FUEL SPILL CONTINGENCY PLAN

A spill has occurred at your facility or your work site. The following section on "SPILL RESPONSE" will assist you with the activities and procedures to deal with the spill event.

4.1 THE INITIAL SPILL RESPONSE

The **"INITIAL SPILL RESPONSE"** section is in **Appendix A** of this document (the laminated pages). It was written to assist you and to give guidance during the stressful time of a fuel spill event. The Fuel Spill Report will assist with the 'information gathering' required to evaluate and to respond to the fuel spill.

Upon the discovery of a fuel spill you or the RP would activate the "INITIAL SPILL RESPONSE" section. The "Initial Spill Response" section contains:

1. the Initial Spill Response Flowchart, see page 1 of Appendix A,
2. the Emergency Spill Response checklist, see page 2 of Appendix A,
3. the Emergency Contact List, see page 2 of Appendix A, and
4. the Fuel Spill Reporting Form, see page 3 of Appendix A.

4.2 THE EMERGENCY SPILL RESPONSE

1) Activate the **Initial Spill Response Flowchart shown in Appendix A on Page 1.**
2) Ensure the safe containment of the spill or the safe evacuation of the spill area.
3) Ensure measures are taken to protect public health and safety.
4) Report to your Supervisor and your RP for assistance.
5) **Contact the NWT 24 Hour Spill's Hotline at: (867) 920-8130 and report spill.**
6) **Fill out the "Fuel Spill Report." – see Appendix A on Page 3.**
7) Initiate 'spill clean-up measures' through other agencies or resources if necessary.
8) Follow through on the proper disposal of spill contaminants.
9) Conducting follow-up reports and activities to assist in the closing of the spill file.

4.3 SPILL RESPONSE: EMERGENCY PHONE NUMBERS

Emergency phone contact numbers are provided in **Appendix A, on Page 2,** to assist you during a fuel spill. Contact information is provided for: the facility Responsible Person, their alternates, DOT supervisors and other government agents. Emergency services and the NWT Spills Hotline contact phone numbers are also included.

5.0 SPILL CONTAINMENT METHODS AND SUGGESTED MEASURES

This Spill Containment section will discuss safety, site assessment, berms on land and booms in the water.

5.1 GENERAL OVERVIEW

Speed is one important factor as it is in the first minutes during a flowing spill that can cause a large portion of the potential damage. A second important factor is safety. **Safety always comes first in any spill situation and all actions must be completed in a safe manner.**

The perfect situation would be to control the entire spill and to corral all of the spill volume behind berms and booms in a safe manner. However, it may not be possible to contain the entire slick and the best alternative would be that you achieve some containment and reduce the size of the spill. The larger the size of the spill, the more damage it will cause and the more opportunity for it to enter into a water body.

Another alternative is to evacuate to a safe area away from the spill zone and report the spill event to the NWT 24 Hour Spill's Hotline as soon as possible for a large spill.

5.2 SPILL CONTAINMENT SAFETY ASSESSMENT

Crews responding to a spill must have protective clothing, proper 'spark-proof' tools, reliable equipment and most importantly "clean air" to breathe.

WCB approved work clothes may be used as 'protective clothing' for a fuel spill. Spark-proof tools may be required for containment work around a gasoline spill. However during your initial safety assessment your greatest need will be for clean breathable air. **Excessive fumes are dangerous.**

Fumes are the fuel mixing with air rising from the spilled material. Fumes can be irritating to the eyes, nose, throat, and they can cause breathing problems, unconsciousness, and potentially death. Always work the spill site from the upwind side during the assessment. Be very aware of the wind direction and the temperature. Warmer temperatures can produce dense fumes from the spilled product.

If fumes are a problem it is essential to evacuate the area, barricade access and call for 'Special Assistance,' from DOT Environmental Affairs, the Fire Department and from Emergency Services.

5.3 SPILL SITE ASSESSMENT FACTORS

Several factors are important in the assessment of a spill for Spill Containment. Spill Containment itself is a difficult task. It can be made more difficult by:

1. the terrain,
2. the ground surface,
3. the season, and
4. the weather.

Terrain includes hills, low areas, lakeshores, riverbanks, and swamps. The ground surface means the soil and the ground cover. Sandy soils and gravel will allow for fast penetration while clay and silty soils will resist immediate soaking. Rock and pavement will allow the spill to quickly flow overland.

The season can also influence the soil and ground cover. Frozen ground will assist containment, as the fuel will not easily penetrate into the earth. Snow may also be available for building berms and can be used as an absorbent. A still, quiet, and cold day in the middle of winter can have its advantages over a warm and windy day in the summer. Fumes from fuel are more evident and more dangerous on warm days.

The weather with rain and falling snow will also cause problems in that the fuel spill could be quickly washed into a water body or covered in snow making detection of the spill difficult and dangerous. You may need to probe beneath the snow cover to find the limits of spill. **Warning: in deep snow this can be dangerous; do not work alone when probing.**

5.4 BERMS ON LAND

With these factors in mind you must address the spill flow with the equipment and materials available to you. The goal of Spill Containment is to stop or to slow the flow by placing a barrier in front of the flow to control its movement. Two effective types of barriers are berms and booms of sorbent materials. Berms are constructed with earth or snow depending on the season using heavy equipment for berms larger than 0.3 metres in height.

Hand tools can be used for smaller initial berms before the arrival of heavy equipment. Berms should be built with the excavated trench on the spill side. This allows for the plastic sheeting to be placed into the trench and weighted down with rocks or dirt and then pulled over the top of the berm and weighted down to prevent damage from the wind.

The plastic sheeting will then hold back the spill volume while the berm holds the plastic sheeting. The excavated material berm made of earth or snow is quick and simple to build.

Important: the berm material should be packed down before placing the plastic sheeting. See Figures B1 and B2, in Appendix B, for suggested construction methods. Later when equipment becomes available, you can strengthen containment with additional material being added to the downside of the initial berm.

5.5 BOOMS ON LAND

Booms are quick and easy to deploy when they are dry. The booms will need to be weighted down with rocks or anchored with 'wooden stakes' in order to start operating properly. Once wet they become very heavy. Fuel spill containment booms are made up of hydrophobic sorbent materials. These sorbents will shed water and absorb oils, fuels, and solvents.

On land, sorbent booms should be positioned in a wide and shallow V pattern with the point of the V pattern being the lowest point or down grade from the spill. If possible, a second V shaped boom should be placed down grade a short distance from the first boom in order to catch any leakage. See Figure B3, in Appendix B, for placement locations and ground orientation.

5.6 BOOMS IN THE WATER

If the spill has entered a water body, immediately consult with Environmental Affairs staff for 'Special Assistance.' However, if it is safe to do so, and on the advice of Environmental Affairs, you may deploy booms into the water. Short-term booms can be quickly constructed by tying up, existing rolled sorbent blankets cut to length, with rope.

Be aware that any large waves, rapids, white water, and large debris will damage the booms and cause loss of containment. High winds will also cause problems with spill containment.

Deploy booms in creeks and streams in the quiet water areas some distance downstream from where the spill entered the water. The spilled fuel will typically be on the surface, floating as a slick on the water. The boom may easily contain the slick where the water is still, wave action is small, and current action is weak.

In moving water, the boom should be deployed in a long curving C-shape, if possible. The middle of the C-shape, being farther downstream, will contain the majority of the fuel spill. Long ropes may be needed to maintain the C-shape from shore and to anchor the booms against the current.

Boom deployment on lakes will require extra attention, as the slick will be easily pushed by the wind. Any boom placement may require a powerboat to assist with deployment. See Figure B4, in Appendix B, for water placement locations and stream orientation.

6.0 SPILL CLEAN-UP METHODS AND SUGGESTED MEASURES

This Spill Clean-up section will discuss safety assessment, pumping and scooping, spill clean-up work methods and spill clean-up work guidelines.

6.1 GENERAL COMMENTS

This Spill Clean-up section will deal with spills on land in winter and in summer. Special conditions will prevail with fuel spills in water or for spills on an icy river or lake. Due to the special nature of water, frozen or fresh, you will need 'advice and Special Assistance' from Environmental Affairs.

6.2 SPILL CLEAN-UP SAFETY ASSESSMENT

Please refer to Section 5.2, Spill Containment Safety Assessment for additional details. Typically, due to size or location, some fuel spills may require a vacuum truck and heavy 'earth moving' equipment. Small spills may only require a shovel and a wheelbarrow. **Always make safety your first priority.**

The following are general warnings for working around spill sites and with heavy equipment:

- Always work with a partner and use a buddy system for safety.
- Be aware of fumes and always stay upwind from the spill area.
- Locate and secure spill source and any ignition sources.
- Fuel soaked sorbents are flammable. They may ignite and burn without warning.
- Place all spent sorbents into sealed drums prior to transport to disposal site.
- Use extreme caution when working with heavy 'earth moving' equipment. As they can provide an ignition source. Also they can be a danger to ground personnel.

6.3 PUMPING AND SCOOPING

Spill Clean-up for diesel and gasoline fuels is a two-step process after containment. Both steps involve the physical removal of the spilled liquid and any material that is soaked with that liquid. Both of the steps are difficult, dangerous and imperfect.

Step one: Use whatever means available and practical to pump up the bulk of the liquid and as much of the liquid/solid mixture of the fuel and the soil/snow/water as possible. The pumped liquid and mix is stored in tanks for transport to a refinery. Any type of pumping or removal of spilled liquids will involve 'Special Assistance' that will be dispatched by Environmental Affairs staff.

Step two: Using earth moving techniques to scoop and remove the bulk of the liquid/soil/snow/water mixture that cannot be pumped. This scooped material, a mixture of some liquid and mostly solid, may be sent to a soil farm.

6.4 SPILL CLEAN-UP WORK METHODS

The spill clean-up effort can be large. The fuel soaked soil, snow, or ice can now become the storage zone for many future problems. Take care to remove as much of the affected soil and snow as possible as a small percentage of the spill will always remain behind as a residue.

Leakage can be a problem during excavation of the affected area. For an effective clean-up job, 100% of the affected material and pollutant must be picked up for disposal. The difficulty with any kind of clean-up that requires 100% removal is that the material soaked with a pollutant must be picked up without any secondary spillage. There is no point in picking up fuel soaked soil or sorbent blankets and allowing them to leak and 'drip' all over the equipment and the ground that was just cleaned. Such secondary leakage will only hinder clean-up efforts and potentially expand the contamination area.

Important: To stop the spread of secondary leakage you may need to set up a confined area for the loading of trucks and establish a travel zone for excavating equipment. All of these areas may need a re-clean after the main clean-up effort is complete. See Figure C1, in Appendix C, for a spill clean-up scenario showing work zone set-up. This scenario will assist you in reducing the area that may require re-cleaning.

Public Works and Government Services Canada has quoted that a single gallon, 4.55 litres, of diesel fuel can make one million litres of water unfit for human consumption. To prevent any future problems it is important to remove all 100% of the contaminated materials cleanly. Any type of excavating of fuel soaked soils or snow for transport to a disposal site will involved special attention on your part.

6.5 SPILL CLEAN-UP WORK GUIDELINES

The following are guidelines for working to excavate fuel soaked sorbents, soils, snow and boom removal:

- Any removal or replacement of sorbent materials or booms will require that the new sorbent unit be placed down grade or downstream from the spent unit. This will prevent spillage and escape of excess pollutants contained by the first unit.

- When removing fuel soaked sorbent materials from a spill be cautious of **their weight.** Always use proper 'back-saving' work procedures and use equipment for pick-up whenever possible.

- Be cautious of spillage and leaks from over soaked sorbents. A wet fuel soaked sorbent material blanket or boom will now be many times heavier than when dry. And the very effort of removing it from the spill will cause leaks from the sorbent.

- Always work from good ground to bad. Push, scrape or shovel the soaked ground and snow ahead into the spilled area before pick-up by excavator or shovel. Be aware of the footing where you are standing. Always stand on solid clean ground. Excavate all suspect fuel soaked soil and snow before advancing.

- Some fuels will easily penetrate into the soil and ice leaving a soft muck or mulch, which will not support any weight. Deep snow soaked with fuel can behave in a similar manner. Probe the snow and check the ice for safety and to monitor weight carrying capacity. Always work with a partner, as this can be dangerous.

- Establish a short travel distance to the collector unit, dump truck or wheelbarrow. This will minimize spillage and avoid recontamination of the cleaned area. The affected area may require re-cleaning if there has been excess spillage. Any berm material, soil or snow, including the plastic liner will also require disposal.

- Establish eye contact with the equipment operator when in close proximity to the equipment and before crossing their line of travel. Never work behind moving equipment. Avoid sudden movements. Always look before you step. If you do not know where the equipment is, at all times, then how does the equipment operator know where you are?

7.0 MAINTENANCE CAMP SITE DESCRIPTION

The James Creek Facility is located at Km 14 of NWT Highway No. 8, see Appendix D.

7.1 INVENTORY OF SPILL RESPONSE EQUIPMENT

The James Creek Facility is a contractor-operated seasonal camp which operates mainly in the winter . Several highway maintenance camps are owned by the Government of the Northwest Territories but operated by a contractor. The inventory of heavy equipment onsite can vary according to the needs of the highway maintenance section and the volume of work being completed by the contractor. The list of 'on-site stand-by' vehicles and equipment noted the 'equipment list' is available on short notice.

Appendix E details the available heavy equipment and a tools list. The exact equipment and tools necessary for the containment and clean-up of a spill will depend on the size of the spill, the material spilled, and the proximity of near-by water bodies. Typically, where large amounts of fuel are stored, the Responsible Person would be aware of the requirements of 'on-site stand-by' equipment.

7.2 POTENTIAL FUEL SPILL SOURCES

The James Creek Facility stores petroleum products on site as described below:

- One 100,000 L diesel storage tank and dispensing system. Tank is double walled.
- Vehicle Storage Yard. Parking for Fleet vehicles and equipment within fence line.
- Employee Parking Lot. Parking stalls for employee and visitor vehicles.
- Main Repair Shop. Routine vehicle and equipment maintenance activities complete with appropriate fluid containment measures.

7.3 HEALTH AND SAFETY TRAINING

All required staff, DOT personnel, and field employees are provided with training in:

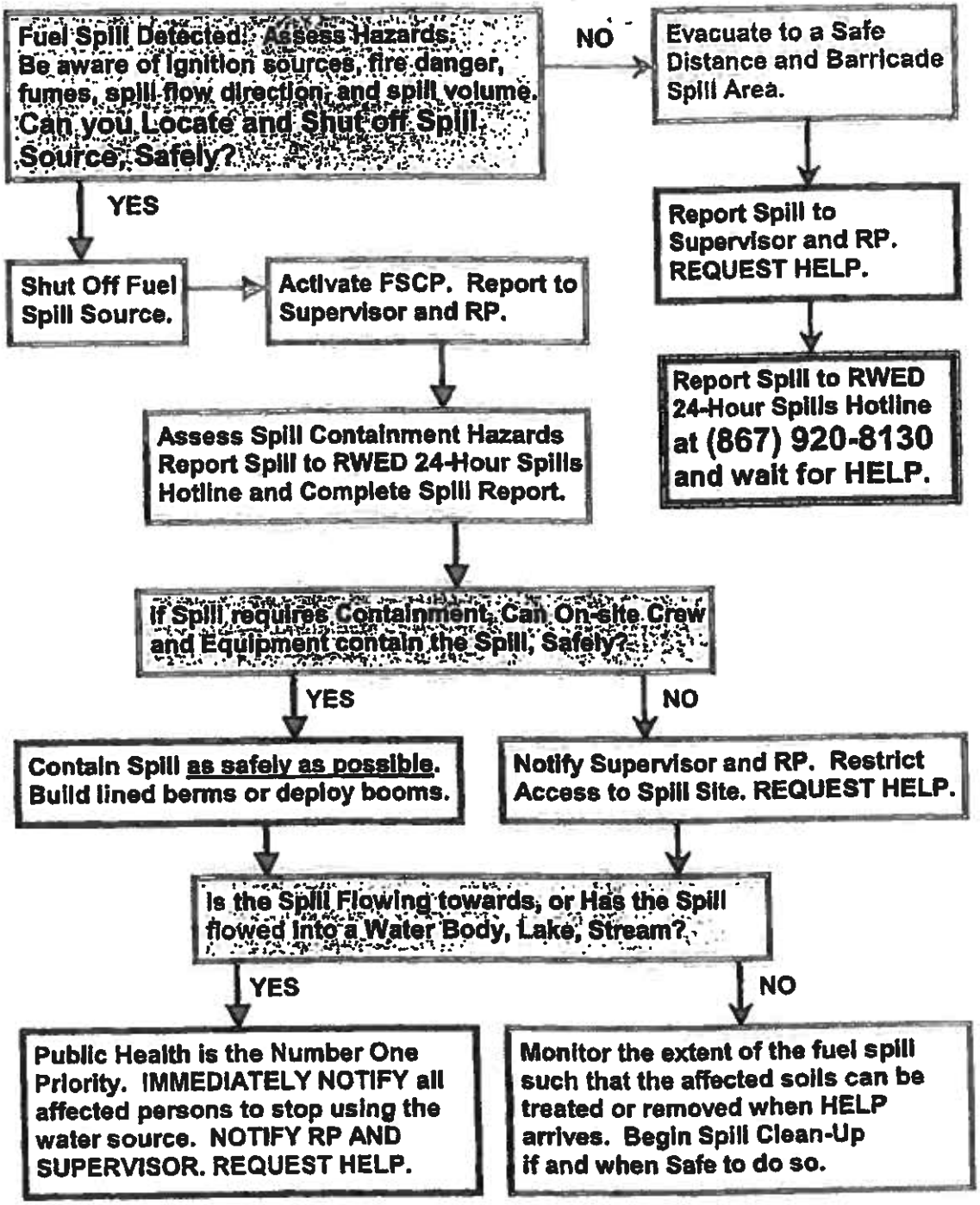
- WHMIS
- First Aid
- Safety Awareness
- Hazard Identification

All staff must be familiar with this Fuel Spill Contingency Plan and its amendments by the end of December 2003. The required staff will be provided with Fuel Spill Prevention and Fuel Spill Clean-up Methods Seminars as they become available. It is recommended that all fuel dispensing station and storage depot staff will practise the use of absorbents for spill clean-up and the deployment of spill containment booms every second year.

Appendix A

Initial Spill Response

FUEL SPILL CONTINGENCY PLAN – INITIAL SPILL RESPONSE FLOWCHART



EMERGENCY SPILL RESPONSE CHECKLIST

1) Activate the **Initial Spill Response Flowchart shown in Appendix A on Page 1.**
2) Ensure the safe containment of the spill or the safe evacuation of the spill area.
3) Ensure measures are taken to protect public health and safety.
4) Report to your Supervisor and your RP for assistance.
5) **Contact the NWT 24 Hour Spill's Hotline at: (867) 920-8130 and report spill.**
6) **Fill out the "Fuel Spill Report." – see Appendix A on Page 3.**
7) Initiate 'spill clean-up measures' through other agencies or resources if necessary.
8) Follow through on the proper disposal of spill contaminants.
9) Conducting follow-up reports and activities to assist in the closing of the spill file.

EMERGENCY PHONE LIST – CENTRAL REPAIR FACILITY

Name	Position	Office
Mr. Bruce Krutko	Highway Foreman	952-2279
Mr. Gurdev Jeggal	Regional Superintendent	777-7348

EMERGENCY CONTACT LIST – FUEL SPILL REPORT

Department	Phone or Fax
NWT SPILLS HOTLINE PHONE	Phone: (867) 920-8130
NWT SPILLS HOTLINE FAX	Fax: (867) 873-6924
DOT Environmental Affairs Manager	Phone: (867) 873-7063
DOT Environmental Affairs Fax Line	Fax: (867) 920-2565

OTHER EMERGENCY NUMBERS

Emergency Services	Phone
Fort McPherson FIRE Contact Number	952-2222
RCMP – Fort McPherson	952-1111
Fort McPherson Health Centre	952-2586

CONTRACTORS AVAILABLE FOR ASSISTANCE

Dinjii Zhuh Trucking Ltd	(867) 952- 2440
James Ross	Cell: (780) 9406302

Northwest Territories Transportation

Fuel Spill Report

Reporting Date	Date and Time of Spill (if known)	RWED Spill Number (ask for one)
A		

Area Description or Location/Map Co-ordinates of Spill (if known) and Direction if moving B
Party Responsible for Spill (if known) C
Product Type (if known) and Estimated Spill Quantities (Provide Metric Weights/Volumes if possible) D
Cause or Actions Leading to Spill E
Is Spill Terminated or Continuing? F
Extent of Contaminated Area (Visual Estimate of Area in Square Metres) G
Factors Affecting Spill or Recovery – Temperature, Wind, Snow, Ice, Terrain, Buildings, etc. H
Describe Containment – Natural, Dykes, Berm and Liner, Booms with Spill Skirts, or Other or No Containment Possible I
Action (if any) Taken or Proposed to Contain, Recover, Clean up or Disposal of Contaminated Soils K
Hazard to Persons or Property or Environment – Fire, Drinking Water. Threat to Fish or Wildlife. L
Warning of Affected Communities and Persons – Obtained Permission for Soil Disposal/Transport M
Do you require assistance? If yes please describe N
Comments, Actions, or Recommendations O

Reported by: P	Position, Employer, Location	Telephone:
Reported to: Q	Position, Employer, Location	Telephone:

Report to "NWT Spills Hotline:" Yellowknife Phone: (867) 920-8130; Yellowknife Fax: (867) 873-6924
Report to "Environmental Analyst:" Yellowknife Phone: (867) 873-7103; Yellowknife Fax: (867) 920-2565

Appendix B

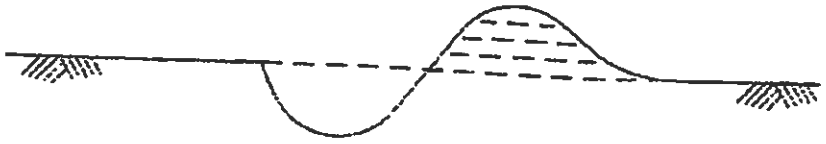
Spill Containment
Suggested Methods and Practise

Suggested Containment Methods for Fuel Spills:

B1: Earth and Snow Berm Construction Scheme – Hand Tools
B2: Earth and Snow Berm Construction Scheme – Equipment
B3: Berm Placement and Boom Deployment on Land
B4: Boom Deployment on Water (Creek example)

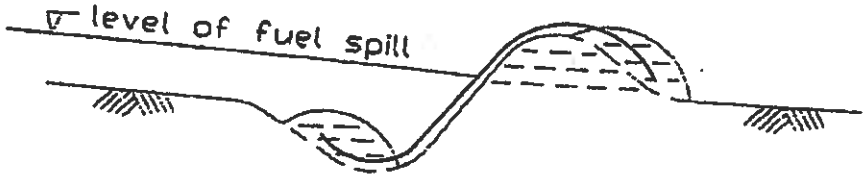
Spill Side

Down Side

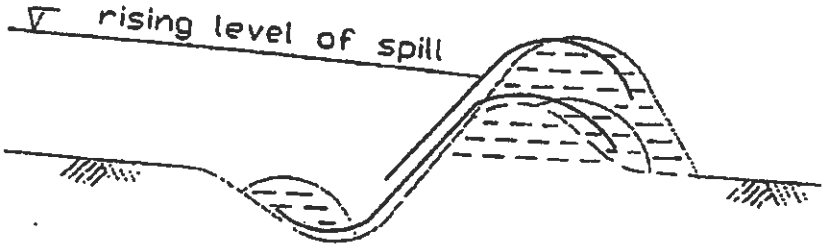


1. Excavate and build a compacted berm on downstream side.

2. Spread plastic sheeting to cover bottom and to cover top.



3. Place rocks or fill to hold down plastic sheeting

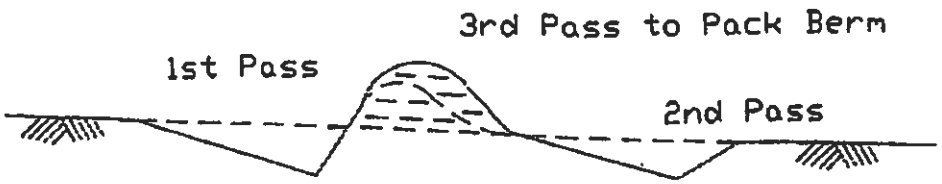


4. Extra sheeting and fill can build berm higher if needed

Appendix B: Simple Berm Construction Scheme - Hand Tools

Spill Side

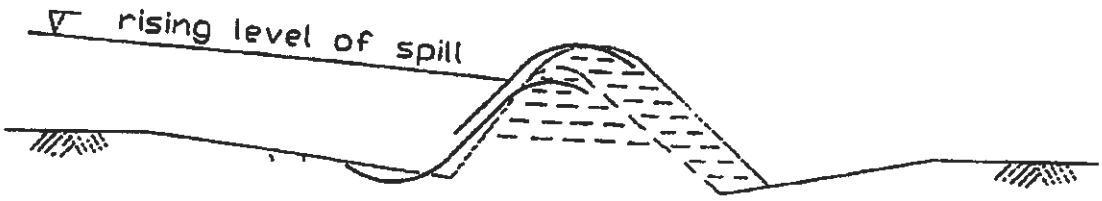
Down Side



1. First Pass: Excavate shallow trench and cast low.
2. Second Pass: Scrap and clean to cast high windrow.
3. Third Pass: Compact windrow with track.

4. Spread plastic sheeting to cover bottom and to cover top.

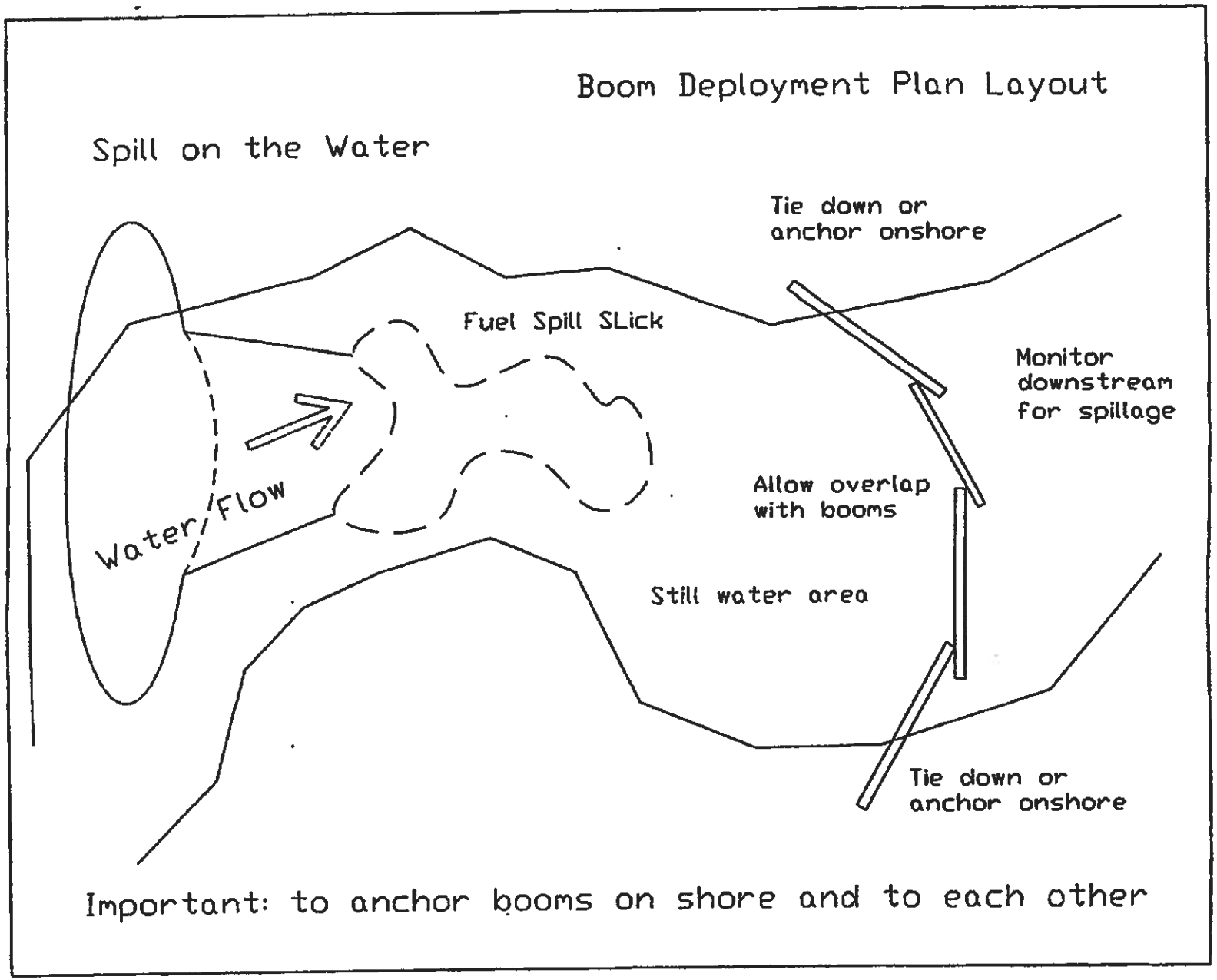
5. Fourth Pass to cover bottom of plastic.
6. Fifth Pass to cover top of plastic.



7. Extra sheeting and fill can build berm higher if needed.

Appendix B: Berm Construction Scheme - Equipment

Appendix B: Berm and Boom Placement on Land


Boom Deployment Plan Layout
Spill on the Water
Tie down or anchor onshore
Fuel Spill SLick
Monitor downstream for spillage
Allow overlap with booms
Water Flow
Still water area
Tie down or anchor onshore
Important: to anchor booms on shore and to each other

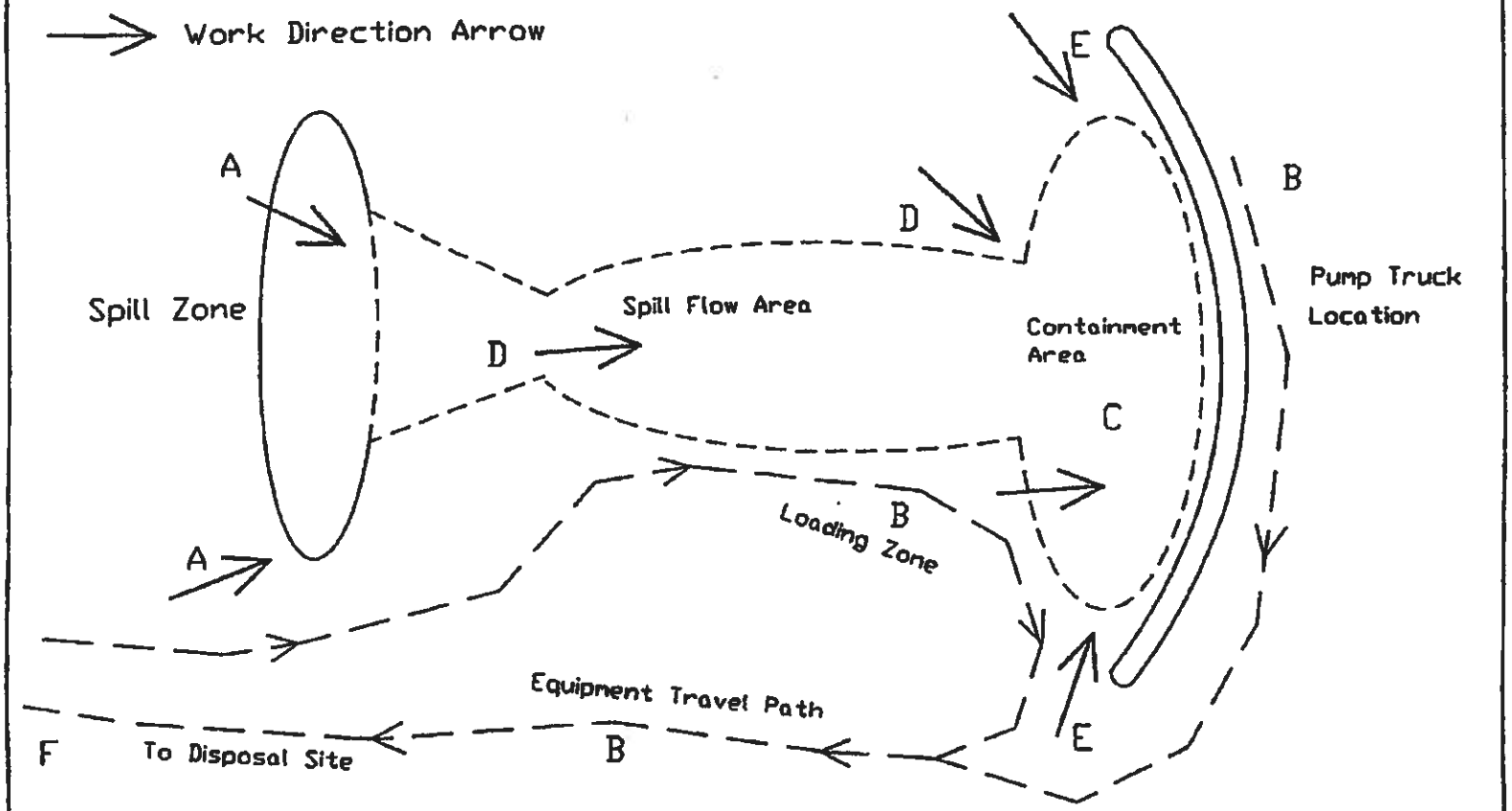
Appendix C

Spill Clean-up
Suggested Method and Practise

Suggested Clean-up Method for Fuel Spills:

C1 Pump and Scoop Scheme complete with Designated Travel and Loading Zones

Pump and Scoop of a Berm Contained Spill



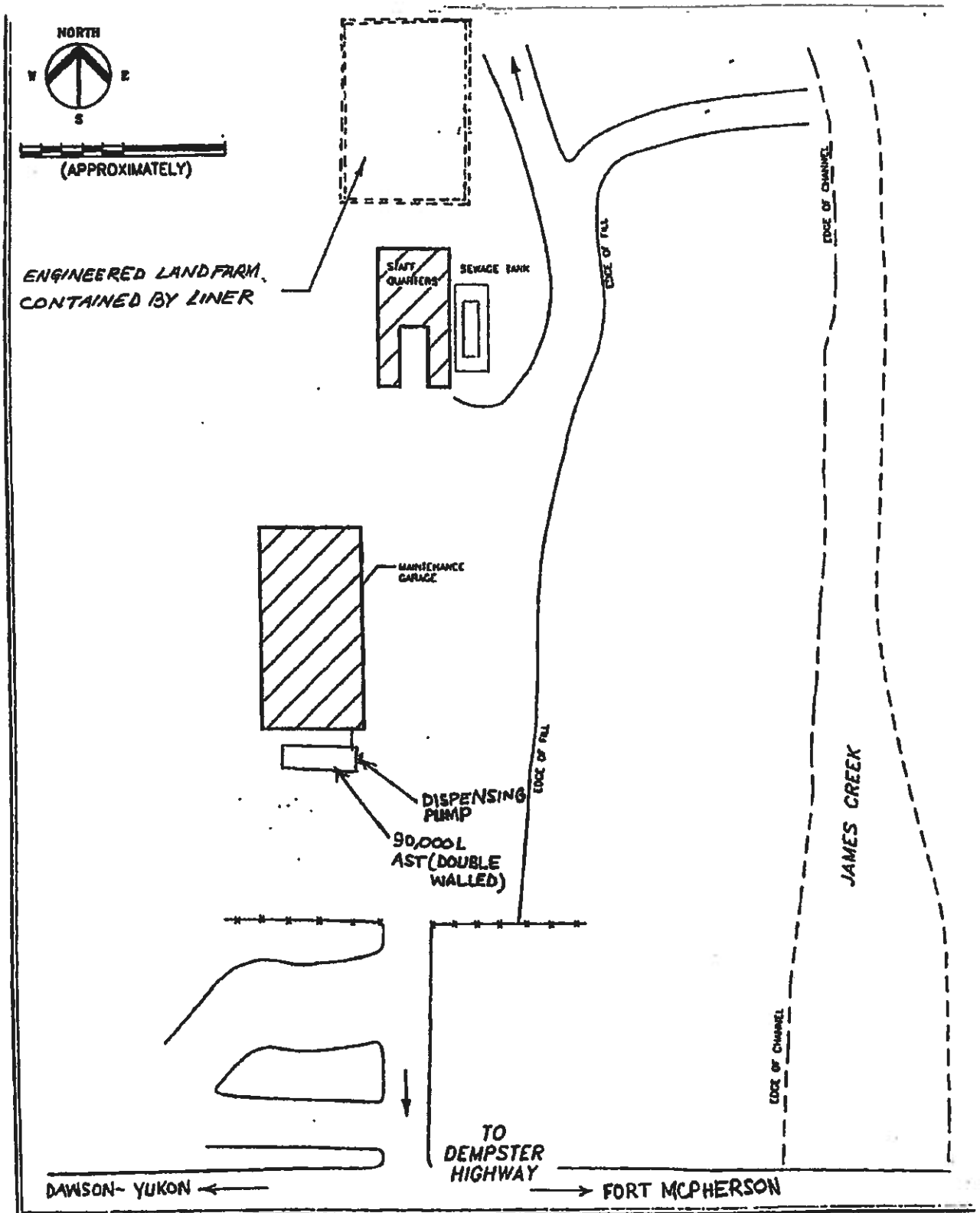
A: Push fuel soaked soils forward into spill area before pick-up
B: Designate Equipment Travel Zones and Loading Areas
C: Pump out Max. Fluid from Spill Containment as possible
D: Scrape out Fuel soaked soils from Spill Flow Area
E: Removal of affected soils, plastic liner, and berm soils for Disposal
F: Final Clean-up and Reclean of affected soils at loading and travel zones

Appendix D

GENERAL SITE MAPS AND SKETCHES

List of Maps

D1. Site Plan of James Creek Camp Facilities



SURVEY AND DRAWINGS BY OTHERS	TITLE: SITE PLAN	PROJECT: FSCP
	SITE: JAMES CREEK CAMP	SCALE: N.T.S.
		DATE: APR. 19, 2004
	DEPT. TRANSPORTATION	FIGURE NO. D1A

Appendix E

EQUIPMENT LIST

List of Equipment available for Fuel Spill Incident

- James Creek Camp Equipment Inventory
- Contractor "As and When" Equipment List
- Spill Kit List

Equipment List

The following is a typical list of equipment available at the James Creek Camp:

- Pick up trucks, usually two available for use

Additional equipment and materials is available on an "As ans When" basis from local and area contractors including the following:

- Tandem truck complete with snowplow and sanding attachments
- Motor grader – Cat 140H type
- Rubber tired loader – Cat 966 type – 2.0 cubic metre capacity
- Crawler Tractor – Cat D7
- Sand and Gravel
- Miscellaneous portable equipment: hand compactors, chainsaws etc.
- Various hand tools including round and flat shovels, picks, rakes, pry bars, brooms, squeegees etc.

Pending Spill Kit List

The following is a list of Universal Spill Kits as manufactured by Can-Ross for use in cleaning up fuel spills. The Can-Ross Environmental type of hydrophobic sorbent materials will absorb oils, hazardous chemicals, caustics, solvents, and fuels without absorbing water. The kits come in various sizes from the Acklands Grainger:

- 30 L capacity Pick-up Truck size
- (optional) 240 L capacity extra large size

LIQUITROL GENERAL MAINTENANCE UNIVERSAL SORBENTS (NON-SELECTIVE)

Will absorb most hazardous and non-hazardous liquids. Universal sorbents eliminate the guesswork regarding proper sorbency selection during emergency spill clean-up.

Economy Cat. No.	Premium Cat. No.	High Performance Cat. No.	Description	Size
Hazardous Materials				
—	BIGU1	—	Pillows	5" x 12"
BIGTU4	BIGU4	—	Pillows	12" x 13"
BIGTU2	BIGU2	—	Socks	3" x 4'
BIGTU210	BIGU210	—	Socks	3" x 10'
—	BIGU5	BIGSBS2-55	Boom	5" x 10'
—	—	BIGS2PL50+	Pads	16" x 18" d.w.
BIGTU100	—	—	Pads	17" x 19"
BIGTU200	—	—	Pads	17" x 19"
—	BIGU100	—	Pads	16.5" x 20" d.w.
—	BIGU200	—	Pads	16.5" x 20" s.w.
—	—	BIGSBS2-75	Pads	19" x 19" d.w.
—	BIGU190	—	Rolls	18" x 115' d.w.
	—	BIGSBS2-90	Rolls	32" x 150' d.w.
	BIGS2PL50+		Perforated Roll	16" x 18" x 3/8"
—	BIGU-8	—	Particulate	10 lbs.

U100

RAILROAD MATS

Cat. No.	Size
BIGM147	56" x 80'
BIGM148	30" x 80'
BIGM149	16 x 80'
BIGM151	56" x 80' & 30" x 80'

LIQUITROL SPILL KITS

Universal Spill Kits (SK-U Series) will absorb most hazardous chemicals (acids, caustics, solvents, oils and fuels). Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic).

Cat. No.	Description	Sorbent Capacity
Universal Spill Kits (SK-U Series)		
BIGSK-UHND	Nylon Carry Bag	17 L
BIGSK-UHND-D	Nylon Carry Bag, Includes Drain Cover	17 L
BIGSK-U5	Polyethylene Pail, 5 Gallon	20 L
BIGSK-UCAB	Metal Wall Cabinet, 15" x 30" x 10"	33 L
BIGSK-U14	Polyethylene Pail, 14 Gallon	45 L
BIGSK-U30	Polyethylene Drum, 30 Gallon	96 L
BIGSK-UL	Spill Locker, 42" x 30" x 29"	215 L
BIGSK-UL-W	As SK-UL with Weather-Strip	215 L
BIGSK-UL-C	As SK-UL with Castors	215 L
BIGSK-UL-WC	As SK-UL with Castors and Weather-Strip	215 L
BIGSK-UOVP	Polyethylene Overpack Drum	215 L
BIGSK-U79	Polyethylene Overpack Drum	275 L
Oil Spill Kits (SK-O Series)		
BIGSK-OHND	Nylon Carry Bag	15 L
BIGSK-OHND-D	Nylon Carry Bag, Includes Drain Cover	15 L
BIGSK-O5	Polyethylene Pail, 5 Gallon	20 L
BIGSK-OTRK	Nylon Carry Bag for Truck Use	30 L ← E1
BIGSK-O30	Polyethylene Drum, 30 Gallon	90 L ← E2
BIGSK-OL	Spill Locker, 42" x 30" x 29"	240 L ← E3
BIGSK-OL-W	As SK-UL with Weather-Strip	240 L
BIGSK-OL-C	As SK-UL with Castors	240 L
BIGSK-OL-WC	As SK-UL with Castors and Weather-Strip	240 L
BIGSK-OOVP	Polyethylene Overpack Drum	240 L
BIGSK-O79	Polyethylene Overpack Drum	305 L

SPILL KIT ACCESSORIES

Cat. No.	Description	Size
BIGGZ-DRCV	Drain Cover	36" x 36" x 1/16"

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Item Description

Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Nylon Carry Bag for Truck Use. 30 liter sorbent capacity

Acklands - Grainger Catalog part Number:	BIGSK-OTRK
Brand Name:	Can-Ross Environment
Manufacter Model No.:	SK-OTRK
Manufacter Name.:	Can-Ross Environment
Unit of Measure:	KT
Price:	$125.34

To add an item to an order, enter a quantity in the field provided and click "Add items to order".

1 ADD ITEMS TO ORDER

Technical Specifications

Capacity	30 L
Description	Nylon Carry Bag for Truck Use
Type	Oil Spill Kits (SK-O Series)
Long Description	Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Nylon Carry Bag for Truck Use. 30 liter sorbent capacity
Brand Name	Can-Ross Environment

In the Catalog
Catalog Page:
See all the items on page1431

Notes about product

Non Special Notes

E1

ACKLANDS GRAINGER

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keyword | catalog part # | manuf part #

You have 0 items in your Shopping Cart.

NONE

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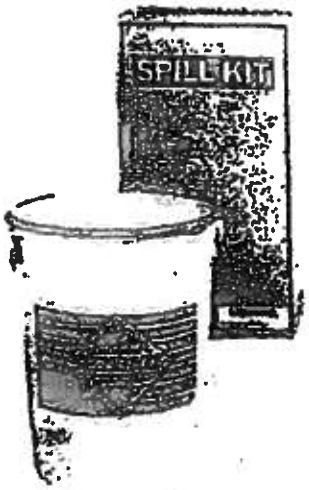
Item Description

Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Polyethylene Drum, 30 Gallon. 90 liter sorbent capacity



Acklands - Grainger Catalog part Number:	**BIGSK-O30**
Brand Name:	**Can-Ross Environmental**
Manufacter Model No.:	**SK-O30**
Manufacter Name.:	**Can-Ross Environmental**
Unit of Measure:	**KT**
Price:	**$454.12**

To add an item to an order, enter a quantity in the field provided and click "Add Items to order". 1 ADD ITEMS TO ORDER

Technical Specifications

Capacity	90 L
Description	Polyethylene Drum, 30 Gallon
Type	Oil Spill Kits (SK-O Series)
Long Description	Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Polyethylene Drum, 30 Gallon. 90 liter sorbent capacity
Brand Name	Can-Ross Environmental
Web Image Name	BIGSK-030.jpg

In the Catalog
Catalog Page:
See all the items on page1431

Notes about product

Non Special Notes

E2

ACKLANDS GRAINGER.

search

keywords catalog part # manuf. part #

...have 0 items in your Shopping ...art.

NONE

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Item Description

Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Spill Locker, 42 inch x 30 inch x 29 inch, 240 liter sorbent capacity

Acklands - Grainger Catalog part Number:	BIGSK-OL
Brand Name:	Can-Ross Environmental
Manufacter Model No.:	SK-OL
Manufacter Name.:	Can-Ross Environmental
Unit of Measure:	KT
Price:	$1,238.84

To add an item to an order, enter a quantity in the field provided and click "Add items to order". 1 ADD ITEMS TO ORDER

Technical Specifications

Capacity	240 L
Description	Spill Locker, 42 x 30 x 29
Type	Oil Spill Kits (SK-O Series)
Long Description	Oil Spill Kits (SK-O Series) will absorb oils, fuel, and solvents, but will not absorb water (hydrophobic). Spill Locker, 42 inch x 30 inch x 29 inch, 240 liter sorbent capacity
Brand Name	Can-Ross Environmental
Web Image Name	BIGSK-OL.jpg

In the Catalog
 # Catalog Page:
See all the items on page1431

Notes about product
Non Special Notes

3

Appendix F

Fuel Spill Contingency Plan
Reportable Volumes, Logic, and Prevention

Table One – Reportable Volumes of Spill Material

Figure One – Fuel Spill Contingency Plan (Logic)

Potential Spill Incidents - Scenario Consequences and Prevention
Worst Case And Best Case Scenarios for the following:

- Fuel Tanker Involved in Accident near Water Body
- Refuelling of Vehicles Incident
- Vehicle Storage and Operations Incident
- Fuel Storage Tank Leakage Incident

Table 1.0 Reportable Volumes of Spilled Material

Please note: that the Bolded items are very dangerous and will require outside professional assistance. Evacuate all personnel to a safe distance, Barricade the area and Report the 'Spill' immediately.

TDGA Class	Description of Contaminant	Amount Spilled
1.0	Explosives	Any amount
2.1	Compressed gas (flammable)	Any amount of gas from containers with a capacity greater than 100 L
2.2	Compressed gas (non-corrosive, non flammable)	Any amount of gas from containers with a capacity greater than 100 L
2.3	Compressed gas (toxic)	Any amount
2.4	Compressed gas (corrosive)	Any amount
3.1, 3.2, 3.3	Flammable liquid (i.e. Gasoline, Diesel)	100 L
4.1	Flammable solid	25 kg
4.2	Spontaneously combustible solids	25 kg
4.3	Water reactant solids	25 kg
5.1	Oxidizing substances	50L or 50 kg
5.2	Organic Peroxides	1 L or 1 kg
6.1	Poisonous substances	5 L or 5 kg
6.2	Infectious substances	Any amount
7.0	Radioactive	Any amount
8.0	Corrosive substances	5 L or 5 kg
9.1 (in part)	Miscellaneous products or substances, excluding PCB mixtures	50L or 50 kg
9.1 (in part)	PCB mixtures of 5 or more ppm	0.5 L or 0.5 kg
9.2	Environmentally hazardous	1 L or 1kg
9.3	Dangerous wastes	5L or 5 kg
None	Other contaminants	100L or 100 kg

Figure 1 - Fuel Spill Contingency Plan (Logic)

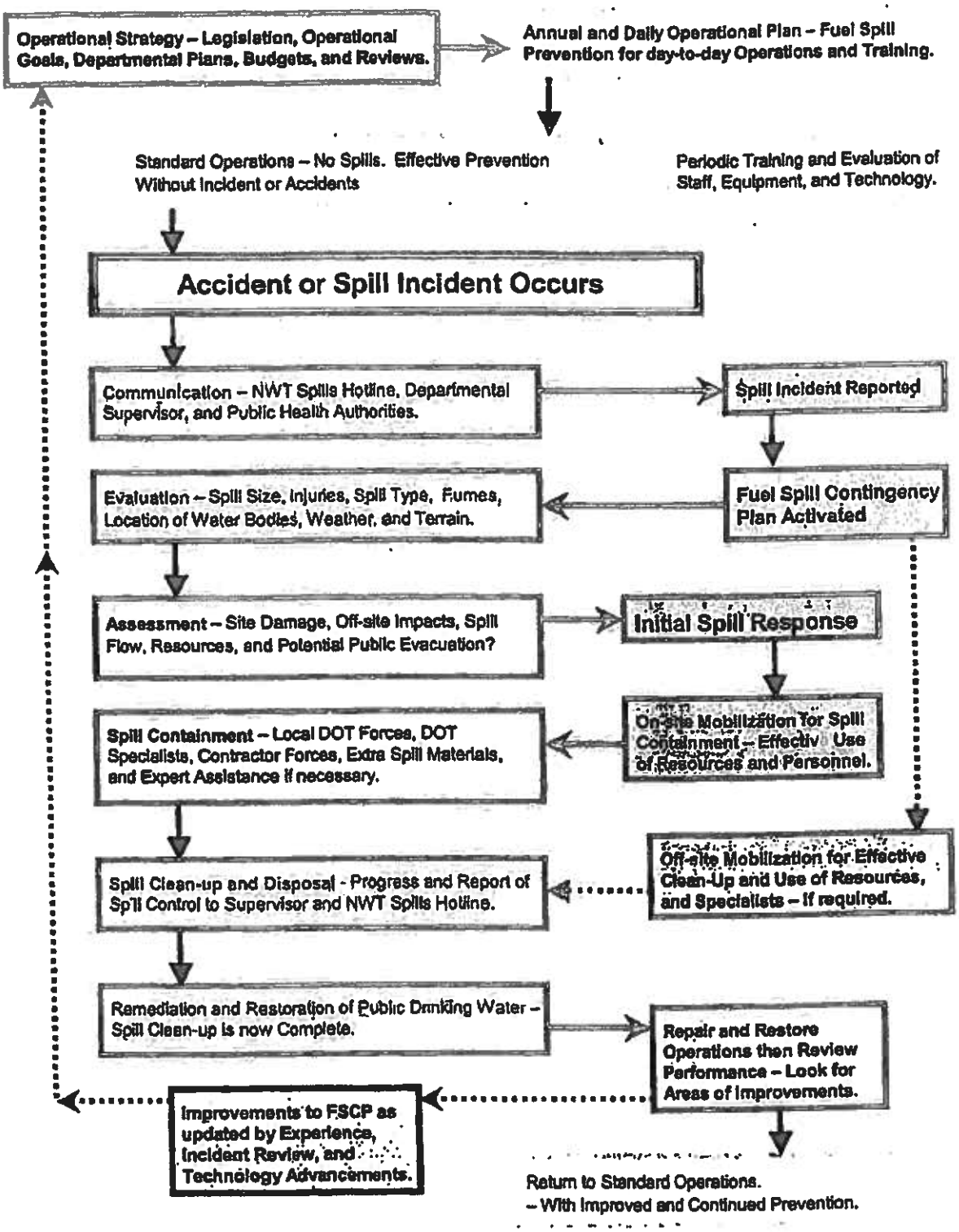

Figure One

Potential Spill Incidents – their consequences and possible preventative measures:

➢ **Fuel Tanker involved in an Accident:**

A fully loaded fuel tanker has an accident with the possibility of spilling fuel over a wide land area and into a water body. The accident could happen without knowledge of DOT or the Contractor. Other vehicles and individuals could also be involved. Injuries may have occurred that require both first aid and emergency assistance.

Consequences:

a) Best case scenario – The first person on-the-scene reports that: the fuel tanker is not significantly damaged and is not leaking. The other vehicles in the accident are not damaged, and no critical or serious injuries. No fuel spill is visible and no fuel slick is visible in any nearby water bodies. Environmental damage potential is very low.

First Response Measures in Best Case Scenario:

First aid for the injured first. Any recovery efforts for the 'fuel tanker' may include pumping the existing fuel load into recovery tanks or to another fuel tanker prior to the removal of the tanker truck from the accident scene. The accident scene may be closed to regular traffic until cleanup is completed. Report accident to police. Call in emergency services as required for recovery assistance. Fuel spill crew on standby.

b) Worst case scenario – The first person on-the-scene has called for help. The situation is serious. The 'fuel load' has leaked all its contents with a visible fuel slick on land and a visible slick heading towards a water body. Injuries are severe and life threatening. Vehicle damages are total. Tanker is leaking. Emergency crews are needed to help the injured. A serious danger from fumes, fire and explosion hazard exists at the accident site. Environmental damage potential is very high.

Emergency Response Measures in Worst Case Scenario:

Emergency services MUST be called to report accident and the fuel spill danger. The accident area must be barricaded from regular traffic. Evacuate all persons to a safe distance – IMPORTANT – only move the injured if absolutely necessary to avoid any extreme or dangerous situation. Be aware of onsite danger to fire, explosion, the effects of fumes, and the flow direction of fuel slick. See Initial Spill Response Flowchart on Page 1 in Appendix A.

Need to dispatch Police, Fire and Rescue crews immediately for the accident situation. Call Spills Hotline to request spill specialists with equipment and fuel spill containment materials. Call in other assistance as required. If the water body is a Drinking Water Source then all affected persons must be notified to the danger.

Please note: This 'extreme' worst case scenario would also require assistance from the Federal Environment Ministry as well as the Department of Fisheries and Oceans. The authorities of any nearby communities must be notified immediately as Alternate water sources, including the 'trucking-in' of potable water, may be required to address public health concerns. An extreme situation may require that any nearby effected communities be evacuated.

➢ **Fuel Tanker Involved in an Accident (continued):**

Preventative Measures:

i) Safe driving procedures would be implemented for all fuel delivery drivers and operators.
ii) Coordination and communication would be implemented between DOT, the Contractor, and the fuel supplier to include: routes, departure times, check-in times, arrivals, and a progress update protocol to report any incidents or delays.
iii) DOT personnel and contractor crews should be prepared to mobilize to assist at the scene, to contain the spill and to begin clean-up, as the on-site crew may be the closest respondents to the spill.
iv) The fuel supply company will have a Fuel Spill Contingency Plan, complete with a Fuel Spill Containment Strategy, in place at all times.
v) All crew and transport vehicles will be stocked with spill containment equipment.
vi) All crew and transport vehicles will be equipped with radio communication.
vii) All personnel will be trained in emergency first aid, radio communications, spill reporting procedure, the use of spill containment gear, and the safe spill cleanup methods.
viii) All personnel would be required to render assistance to any specialized personnel which could be dispatched to effect containment, to complete the cleanup and to complete the recovery efforts.

➢ **Refuelling of Vehicles Incident:**

Refuelling hose could break, spring a leak, fall out of the gas receptacle, or the tank could be overfilled, thereby spilling fuel on the refuelling area.

Consequences:

a) Best case scenario, small puddles of fuel affecting a small zone in the refuelling area.
b) Worst case scenario, hose breaks off at truck, spraying large amounts of fuel over a large area resulting in a slick flowing steadily from truck.

Preventative Measures:

i) All refuelling should occur in an area well back from environmentally sensitive areas such as: residential land, gardens, play grounds, wetlands, swampy areas, sewer drains, and ditches. Crews should be aware of emergency shut-offs and closure valves.
ii) The refuelling site will be stocked with a complement of spills management material.
iii) To reduce spillage leak spills – refuelling personnel should use drip pans.
iv) All fuel storage tanks should be located within a bermed enclosure complete with liners and/or compacted dykes capable of holding at minimum 110% of the fuel storage volume.

➢ **Vehicle Storage and Operations Incident:**

Vehicles could leak fuel while in operation or during overnight storage. Vehicles could experience mechanical problems, discharging fluids at the storage area or in various amounts within the work operations area.

Consequences:

a) At best, small puddles of fuel dropped at storage site.
b) At worst, the entire contents of the vehicle tank could be discharged.

Preventative measures:

i) Vehicles should be stored in an area well back from environmentally sensitive areas.
ii) The site should be stocked with a complement of spills management materials.
iii) Regular visual checks should be carried out to ensure no spills have occurred.
iv) All storage tanks should be located at a safe distance from the ordinary high water mark.
v) Crews should be aware of emergency shut off valves for the tanks.

➢ **Fuel Storage Tank Leakage Incident:**

Fuel could leak from the tanks during refilling, fuel could leak from the tanks while standing, or leak could be caused by vandalism.

Consequences:

a) At best, small puddles of fuel.
b) At worst, the entire contents of the tank could be discharged.

Preventative Measures:

i) Regular visual checks should be carried out to ensure no spills have occurred.
ii) All tanks should be stored at a safe distance from environmentally sensitive areas.
iii) Site should be stocked with a minimum complement of spills management materials .
iv) Crews should be aware of emergency shut off valves for the tanks.
v) All tanks should be enclosed by adequate berms and/or dykes.

PETROLEUM PRODUCTS: REFUELING, STORAGE, HANDLING AND TRANSPORT

DESCRIPTION

Construction uses many petroleum products (like asphalt, diesel fuel and grease). As such, petroleum products and wastes are handled, and stored on the construction site. Fuels and petroleum waste through accidental spills or discharges can substantially damage the environment. This is of most concern for fuels (gasoline and diesel) which can be temporary stored in significant quantities on site. The proper transportation, storage, and handling of fuels and petroleum wastes can reduce the risk of environmental damage.

This Best Practice includes:

1. Fuel transport, storage and refueling
2. Petroleum waste transport and storage

This Best Practice does not include spill protection or responses, see Spills Prevention and Emergency Response.

KEY TERMS AND ACRONYMS

- **Petroleum products:** This includes gasoline, diesel, oils, greases, hydraulic and transmission fluids, lubricants, and asphalt.
- **WHMIS**
- **TDG**

APPLICABLE TERRITORIAL LEGISLATION

- *Environmental Protection Act, 1988*
- *Used Oil and Waste Fuel Management Regulations, 2004*

APPLICABLE FEDERAL LEGISLATION

Applicable legislation includes:

- *Fisheries Act, 1985*
- *Transportation of Dangerous Goods Act, 1992*
    - *Canadian Environmental Protection Act, 1999*
    - including Storage Tank Systems for Petroleum Products and Allied Petroleum Products SOR/2008-197
    - *Hazardous Products Act, 1985*
    - *Spill Contingency Planning and Reporting Regulations 2007*

FUEL TRANSPORTATION, STORAGE AND HANDLING

3. Refuelling

- Fuels should only be handled by personnel who are trained and qualified in handling these materials in accordance with manufacturers' instructions and government regulations.
- Refuelling operations shall be supervised at all times. Under no circumstances shall any refueling procedure be left unattended by the operator.
- Fuelling or servicing of mobile equipment shall not be allowed within 100 m of a watercourse, wetland, and in such a manner as to prevent spilled material from migrating to a watercourse, drainage ditch, or other environmental sensitive areas.
- Smoking shall be prohibited within 10 m of a refuelling area.

PETROLEUM WASTE AND STORAGE

4. Storage

- Waste oils and lubricants or other petroleum products shall be retained in a clearly labelled tank or closed container with a secondary containment system, and recycled or disposed of at an approved facility.
- Temporary storage areas for such wastes prior to disposal shall also have an impervious mat and be surrounded by an impervious dyke of sufficient size to contain not less than 125% of the capacity of the storage containers, plus 150 mm of freeboard.
- TIME LIMIT FOR STROAGE AND REPORTING REQUIREMENTS?
- All empty containers are to be returned to a designated location for proper disposal. Empty containers are not to be disposed of on site or in an unauthorized manner, such as at borrow sites. Do not discharge or dispose of petroleum products and/or waste into waterways or onto the ground.

Conditions Annexed to and Forming Part of Land Use Permit # G13H004

Part A: Scope of Permit

1. This Permit entitles GNWT Department of Transportation to conduct the following land-use operation:

   a) Fuel Storage
   b) Highway maintenance camp and associated facilites

   located at Dempster Highway km 14.2, James Creek (67°08'30"N / 135°59'53"W)

2. This Permit is issued subject to the conditions contained herein with respect to the use of land for the activities and area identified in Part A, item 1 of this Permit.

3. Compliance with the terms and conditions of this Permit does not absolve the Permittee from the responsibility for compliance with the requirements of all applicable federal, territorial, and municipal legislation.

Part B: Definitions (defined terms are capitalized throughout the permit)

Act - the *Mackenzie Valley Resource Management Act*.

Board - the Gwich'in Land and Water Board established under Part 3 of the *Mackenzie Valley Resource Management Act*.

Borehole - a hole that is made in the surface of the ground by drilling or boring.

Durable Land - land that is able to withstand repeated use, such as gravel or sand with minimal vegetative cover.

Fuel Storage Container - a container for the storage of **petroleum** or **allied petroleum products** with a capacity of less than 230 litres.

Fuel Storage Tank - a closed container for the storage of **petroleum** or **allied petroleum products** with a capacity of more than 230 litres.

Greywater - all liquid wastes from showers, baths, sinks, kitchens, and domestic washing facilities but not including toilet wastes.

Habitat - the area or type of site where a species or an individual of a species of wildlife naturally occurs or on which it depends, directly or indirectly, to carry out its life processes.

Inspector - an Inspector designated by the Minister under the *Mackenzie Valley Resource Management Act*.

Minister - the Minister of Indian Affairs and Northern Development Canada.

Ordinary High Water Mark - the usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land. In flowing waters (rivers, streams) this refers to the "active channel/bank-full level" which is often the 1:2 year flood flow return level. In inland lakes, wetlands, or marine environments, it refers to those parts of the Watercourse bed and banks that are frequently flooded by water so as to leave a mark on the land and where the natural vegetation changes from predominately aquatic vegetation to terrestrial vegetation (excepting water tolerant species). For reservoirs, this refers to normal high operating levels (full supply level).

Permafrost - ground (soil or rock) that remains at or below 0°C for at least two consecutive years.

Secondary Containment - containment that prevents liquids that leak from Fuel Storage Tanks or Containers from reaching outside the containment area and includes double-walled tanks, piping, liners, and impermeable barriers.

Sewage - all toilet wastes and Greywater.

Spill Contingency Plan - a document, developed in accordance with Aboriginal Affairs and Northern Development Canada's *Guidelines for Spill Contingency Planning* (April 2007), that describes the set of procedures to be implemented to minimize the effects of a spill.

Toxic - a substance that enters or may enter the environment in a quantity or concentration or under conditions such that it:

a) Has or may have an immediate or long-term harmful effect on the environment or its biological diversity;
b) Constitutes or may constitute a danger to the environment on which life depends; or
c) Constitutes or may constitute a danger in Canada to human life or health.

Waste Management Plan (WMP) - a document, developed in accordance with the Board's *Guidelines for Developing a Waste Management Plan,* that describes the methods of waste management from waste generation to final disposal.

Watercourse - a natural body of flowing or standing water or an area occupied by water during part of the year, and includes streams, springs, swamps and gulches but does not include groundwater.

Part C: Conditions Applying to All Activities (headings correspond to subsection 26(1) of the Mackenzie Valley Land Use Regulations)

26(1)(*a*) Location and Area

1.	The Permittee shall not conduct this land-use operation on any lands not designated in the accepted application.	**Location of Activities**

26(1)(*b*) Time

2.	At least 48 hours prior to commencement of this land-use operation, the Permittee shall provide the following information, in writing, to the Board and an Inspector: (a) the name(s) of the person(s) in charge of the field operation; (b) alternates; and (c) all methods for contacting the above person(s).	**Identify Agent**
3.	At least ten days prior to the completion of the land-use operation, the Permittee shall advise an Inspector of: (a) the plan for removal or storage of equipment and materials; and (b) when final cleanup and reclamation of the land used will be completed.	**Reports Before Removal**

26(1)(*c*) Type and Size of Equipment

4.	The Permittee shall not use any equipment except of a similar type, size, and number to that listed in the accepted application.	**Only Approved Equipment**

26(1)(*d*) Methods and Techniques

5.	The Permittee shall not store material other than that required for immediate use on the ice surface of a Watercourse.	**Storage on Ice**

26(1)(*e*) Type, Location, Capacity, and Operation of All Facilities

6.	The Permittee shall ensure that the land use area is kept clean at all times.	**Clean Work Area**

26(1)(*f*) Control or Prevention of Ponding of Water, Flooding, Erosion, Slides, and Subsidence of Land

7.	The Permittee shall not excavate land within 100 metres of the high water mark of any Watercourse, unless otherwise authorized in writing by an Inspector or the Board.	**Excavate Near Watercourse**

26(1)(*g*) Use, Storage, Handling, and Ultimate Disposal of Any Chemical or

Toxic Material

8.	The Permittee shall maintain a record of all spills. For all reportable spills, as defined in the *NT-NU Spill Report Form,* the Permittee shall: (a) immediately report each spill to the 24-hour Spill Report Line (867) 920-8130; (b) report each spill to an Inspector within 24 hours; and (c) submit, to the Board and an Inspector, a detailed report on each spill within 30 days.	**Report Spills**
9.	The Permittee shall dispose of all Toxic substances by removal to an approved facility.	**Waste Chemical Disposal**
10.	The Permittee shall dispose of all combustible waste petroleum products by removal to an approved disposal facility.	**Waste Petroleum Disposal**

26(1)(*h*) Wildlife and Fish Habitat

11.	The Permittee shall take all reasonable measures to prevent damage to wildlife and fish Habitat during this land-use operation.	**Habitat Damage**

26(1)(*i*) Storage, Handling, and Disposal of Refuse or Sewage

12.	The Permittee shall keep all garbage and debris in a secure container until disposal.	**Garbage Container**
13.	The Permittee shall dispose of all garbage, waste, and debris as described in the approved application, unless otherwise authorized in writing by an Inspector.	**Remove Garbage**
14.	The Permittee shall dispose of all Sewage and Greywater as described in the approved application.	**Sewage Disposal**

26(1)(*j*) Protection of Historical, Archaeological, and Burial Sites

15.	The Permittee shall not knowingly remove, disturb, or displace any archaeological specimen or site.	**Site Disturbance**
16.	The Permittee shall, where a suspected archaeological or historical site, or burial ground is discovered: (a) immediately suspend operations on the site; and (b) notify the Board at (867) 777-2954 or an Inspector at (867) 777-8900, the Gwich'in Social and Cultural Institute at (867) 952-2524 and the Prince of Wales Northern Heritage Centre at (867) 920-6182 or 873-7688.	**Site Discovery and Notification**

26(1)(*k*) Objects and Places of Recreational, Scenic, and Ecological Value

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26(1)(*l*) Security Deposit

17.	Prior to commencement of the land-use operation, the Permittee shall deposit with the Minister a security deposit in the amount of $ 0.	**Security Deposit**
18.	All costs to remediate the area under this Permit are the responsibility of the Permittee.	**Responsibility for Remediation Costs**

26(1)(*m*) Fuel Storage

19.	The Permittee shall: (a) examine all Fuel Storage Tanks and Containers for leaks a minimum once per day; and (b) repair all leaks immediately.	**Check for Leaks**
20.	The Permittee shall ensure that all Fuel Storage Tanks with a capacity exceeding 4,000 litres are double-walled tanks.	**Double-walled Tanks**
21.	The Permittee shall not place any Fuel Storage Containers within 50 metres of the Ordinary High Water Mark of any Watercourse, unless otherwise authorized in writing by an Inspector.	**Fuel Near Water**
22.	The Permittee shall set up all refueling points with secondary containment.	**Secondary Containment - Refueling**
23.	The Permittee shall not allow petroleum products to spread to surrounding lands or Watercourses.	**Fuel Containment**
24.	The Permittee shall adhere to the approved Spill Contingency Plan and shall annually review the plan and make any necessary revisions to reflect changes in operations, technology, chemicals, or fuels, or as directed by the Board. Revisions to the plan shall be submitted to the Board for approval.	**Spill Contingency Plan**
25.	Prior to commencement of operations, the Permittee shall ensure that spill-response equipment is in place to respond to any potential spills.	**Spill Response**
26.	All equipment that may be parked for two hours or more, should have a haz-mat/drip tray under it or be sufficiently diapered. (Leaky equipment should be repaired immediately.)	**Drip Trays**
27.	The Permittee shall clean up all leaks, spills, and contaminated material.	**Clean Up Spills**

26(1)(*n*) Methods and Techniques for Debris and Brush Disposal

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26(1)(*o*) Restoration of the Lands

28.	Prior to the expiry date of this Permit, the Permittee shall complete all cleanup and restoration of the lands used.	**Final Cleanup and Restoration**

26(1)(*p*) Display of Permits and Permit Numbers

29.	The Permittee shall keep a copy of this permit on hand at all times during this land-use operation.	**Copy of Permit**

26(1)(*q*) Biological and Physical Protection of the Land

This section intentionally left blank