



**GWICH'IN LAND AND WATER BOARD
LAND USE PERMIT APPLICATION**

BOX 2018 INUVIK NT X0E 0T0
PH 867 777 4954 FX 867 777 2616

SCHEDULE 2

(Subsection 19(2) of Mackenzie Valley Land Use Regulations)

INFORMATION IN SUPPORT OF AN APPLICATION FOR A LAND USE PERMIT

NEW APPLICATION **AMENDMENT**

1. APPLICANT'S NAME AND MAILING ADDRESS

Gwich'in Development Corp. P.O Box 121
Caribou / Peel River Env. Project Fort McPherson NT

Telephone 867-952-2113
Fax _____

2. HEAD OFFICE ADDRESS

_____ same _____

Telephone _____
Fax _____

Field Supervisor Orie Wyness
Radiotelephone _____
Telephone _____
Fax _____

3. OTHER PERSONNEL

(Subcontractor, contractors, company staff, etc.)

Sub – Contractors List ASAP

Total Number of Persons on Site 15 - 20

4. ELIGIBILITY

(Refer to section 18 if the Mackenzie Valley Land Use Regulations.)

(a) (i) (a) (ii) (a) (iii) (b) (i) (b) (ii)

-
5. a) Summary of Operation
(Describe purpose, nature and location of all activities)
(Refer to paragraph 19 (3) (b) of the Mackenzie Valley Land Use Regulations.)

Access Road Construction (see attached map)

- b) Indicate if a Camp is to be set up
(Provide details on a separate page, if necessary.)

Staging area (see attached map)

6. SUMMARY OF POTENTIAL ENVIRONMENTAL AND RESOURCE IMPACTS

(Describe the effects of the proposed land-use operation on land, water, flora and fauna and related socio-economic impacts.) (Use a separate page if necessary.)

Snow pack Roads

Snow / Ice pack Creek Crossings

7. PROPOSED RESTORATION PLAN

(Use a separate page if necessary.)

Complete clean up creeks, pond Restoration

8. OTHER RIGHTS, LICENCES OR PERMITS RELATED TO THIS PERMIT APPLICATION

(Mineral rights, timber permits, water licences, etc.)

Gwichin Access, Gwich'in Land & Water application schedule II

ROADS:

Is this to be a pioneering road?

Has the route been laid out or ground truthed? X
(Provide details on a separate page.)

9. PROPOSED DISPOSAL METHODS

- | | |
|------------------------------------------------------|--------------------------------------|
| a) Garbage | _____ N/A _____ |
| b) Sewage (Sanitary and grey water) | _____ N/A _____ |
| c) Brush and trees | <u>hauled to Fort McPherson Dump</u> |
| d) Over burden (Organic soils, waste material, etc.) | _____ N/A _____ |

10. EQUIPMENT

(Includes, drills, pumps, etc.) (Use a separate page if necessary.)

Type and Number	Size	Proposed Use
Equipment list to follow		

11. FUELS

	(√)	Number of Containers	Capacity of Containers	Location of Containers
Diesel	___	_____	_____	_____
Gasoline	___	_____	_____	_____
Aviation Fuel	___	_____	_____	_____
Propane	___	_____	_____	_____
Other	___	_____	_____	_____

12. CONTAINMENT FUEL SPILL CONTINGENCY PLANS

(Attach separate contingency plan if necessary.)

Copy of plan to follow

13. METHODS OF FUEL TRANSFER

(To other tanks, vehicles, etc.)

Vehicle Tidy tank/ Transfer pump C/W hose, Couplings etc. Sorbent fuel Cloths

14. PERIOD OF OPERATION

(Includes time to cover all phases of project work applied for, including restoration.)

Earliest Start date	Latest start date	Earliest Finish date	Latest finish date
Dec. 15, 2000	Jan. 1/2001	March 15/2001	March 31/2001

15. PERIOD OF PERMIT

(Up to five years, with maximum of two years of extension)

Start Date Dec 15, 2000

Completion date March 31 2001

16. LOCATION OF ACTIVITIES BY MAP COORDINATES

(Attach maps and sketches)

Minimum latitude (degree, minute) Various Maximum latitude (degree, minute) _____

Minimum longitude (degree, minute) _____ Maximum longitude (degree, minute) _____

Map Sheet Number _____

17. APPLICANT

(Print name in full.)

Name Orie Wyness

Signature Original signed copy kept on file.

Date Nov. 30/2000

18. FEES

Type A \$150.00 \$ 150.00

Type B \$150.00 \$ _____

Land Use Fees _____ hectares @ \$50.00/hectare \$ _____

Assignment Fee \$50.00 \$ _____

Total Application and Land Use Fees \$ _____

FOR OFFICE USE ONLY

Application Fee Amount: \$ 150.00 Receipt No.: _____

Water Use Deposit Amount: \$ _____ Receipt No.: _____

**CARIBOU / PEEL RIVER
ENVIRONMENTAL PROJECT**

DRAFT PROPOSAL

December 21, 2000

Prepared by

Gwich'in Development Corporation

Prepared for

Shell Canada Ltd.

**Indian and Northern Affairs – Canada
Waste Management Program**

1. Introduction

1.1 Background

The Peel River Waste Site is located in the Yukon on the north side of the Peel River, four kilometers upstream of its confluence with the Caribou River at 66° 30.98' N, 134° 04.26' W, 5 km south of the Arctic Circle. The closest community is Fort McPherson, N.W.T., situated 105 km to the north. Eagle Plains, a Dempster Highway lodge and service station, is located 120 km to the west.

The site is within Parcel R4-FS (CLSR 78826) of the Tetlit Gwich'in Comprehensive Land Claim Agreement, is encompassed by Gwich'in Primary Use Area and within the Na-cho Ny'a'k Dun First Nation's traditional territory.

During the mid-1960's, Shell Resources Canada carried out exploratory drilling in the area where an area of approximately 4 ha was cleared and an airstrip was constructed on a gravel bar nearby. Project personnel and drilling equipment were stationed on site until 1967 when the project was abandoned. Equipment and reusable materials were removed off-site. A final cleanup of the site was conducted by Shell in 1975. Two wooden trailers that were on site were demolished. The demolition debris and other materials, including bagged drilling mud, bagged cement and miscellaneous debris were buried in an on-site disposal pit.

The Peel River is actively changing course within its flood plain, and, in 1994, the northeast bank of the river encroached on the disposal pit, exposing the debris. The Gwich'in Tribal Council notified Indian and Northern Affairs - Canada (DIAND).

A site inspection was conducted in August 1994 by DIAND. Results of this inspection indicated there appeared to be no potential contaminants of concern at the site. A short-term stabilization program was conducted in September 1994. This was followed by an electromagnetic survey in March 1995 to delineate the extent of debris in the pit.

Debris buried in the pit continued to be exposed by the eroding action of the river and DIAND, Shell, and the Gwich'in Tribal Council initiated a joint project in 1995 to pick up the exposed debris for aesthetic reasons. Debris was collected and removed as it became exposed during the summers of 1995 to 1998.

In October 1998, representatives of the Northwest Territories Municipal and Community Affairs collected 10 soil samples from the site. The samples were composited and analysed by Enviro-Test Laboratories in Edmonton for a number of compounds, including organochlorine insecticides. It was found that the composite sample contained 79 ppm (mg/kg) of DDT (dichlorodiphenyltrichloroethane), 11 ppm and 3.2 ppm respectively of the DDT metabolites DDD and DDE.

A working group, with representatives including the Gwich'in Tribal Council, DIAND and Shell Canada, was formed to address the issue. It was determined that further study was required. A site investigation was initiated. AGRA Earth and Environmental Ltd. (AGRA, 1999) conducted a site visit in June 1999 during which 11 soil samples were collected and analyzed on site using immunoassay based field test kits. The samples were subsequently analyzed at Enviro-Test Laboratories and found to contain DDT, DDE and DDD. Additional sampling and analysis was therefore recommended. Water and fish samples were also collected and analysed, but did not contain levels of pesticides.

A follow up to the June 18 investigation was conducted on September 18 and 19, 1999 during which 40 samples were collected. Analysis indicated levels of DDT above Canadian Council of Ministers of the Environment (CCME) criterion.

The Working Group determined that a detailed full scale site assessment and contaminant delineation program was required. Royal Roads University was selected as scientific/technical consultant, and a comprehensive surface, subsurface and hydrological investigation was designed and approved by the Working Group. During April and May of 2000, the field component of this program was implemented. It included drilling 33 boreholes, collection of surface and subsurface soil samples, collection of sediment samples, collection of water samples, and installation of erosion control devices.

The results of this study were received in late July, 2000. It appears that approximately 1,100 m³ of soil is impacted with DDTs at levels above the CCME criterion, with the majority of the material in the river bank, in an area susceptible to erosion by the Peel River.

Remedial options (including on-site containment and on-site bioremediation) were considered by the Peel River Working Group. It was concluded that excavation and off-site disposal of the material is the most practical viable option.

1.2 Objectives

Because the contaminated material is located immediately adjacent to, and below the high water mark of the Peel River, winter excavation has been determined to be the most appropriate method of removal. Frozen materials may be excavated and removed without water control issues.

The anticipated methodology will be to access the Peel River Waste Site in winter 2001, along existing seismic lines from Fort McPherson, NWT (approximately 160 km). The routing crosses from the Northwest Territories into the Yukon Territory at 67°N.

Taking advantage of the low water conditions and frozen materials in winter, the contaminated material will be excavated, containerised, and transported to Fort McPherson, NWT. The contaminated material will be transferred to transport trucks and shipped via the Dempster and Alaska Highways to a southern disposal facility. This

facility (to be determined) will have regulatory approval and be licensed to accept the material. Non-contaminated waste material will be land filled in Fort McPherson, NWT.

2. Project Team

2.1 Project Design and Implementation

Peel River Working Group, consisting of:

Gwich'in Tribal Council

Indian and Northern Affairs - Canada, Waste Management Program

Shell Canada Ltd.

Peel River Working Group - Advisory Members:

Government of Northwest Territories

-Hazardous Wastes

-Renewable Resources

-Health

-Resources, Wildlife, Economic Dev.

Indian and Northern Affairs

-Contaminants (Yukon and NWT)

-Water Resources (Yukon and NWT)

Environment Canada

-Environmental Protection

Department of Fisheries and Oceans

Yukon Government

-Environmental Protection

Project Supervision: Public Works and Government Services, Canada

Consultant: Carl Bonke, Shell Canada, Ltd.

Project Administration and Project Management:
Gwich'in Development Corporation

2.2 On Site Project Team

Engineer: UMA Engineering / Public Works and Government Services – Canada

Environmental Scientist: Matt Dodd, Royal Roads University

Project Superintendent: Orië Wyness, Gwich'in Development Corporation

Project Environmental Monitor / Safety-Training Supervisor:

Robert Bourque, Rat River Developments (T.G.C.)

Project Equipment/Labour Supervisor:

T.B.A., Rat River Developments (T.G.C.)

Personnel on Site:

1 Head Cook, 1 Cook (Trainee), 1 Camp Maintenance Person (Trainee), 4 Laborers (Trainees), T.B.A. Rat River Developments (T.G.C.)

Equipment Operators:

4 Operators, Sub-Contractors

3. Scope and Project Organization

3.1 Scope of the project

The Peel River Waste Site remediation project objective is to access the site, excavate contaminated materials, stabilise the site, appropriately dispose of non-hazardous materials, and transport the contaminated materials to an appropriate disposal facility. Included in the management of the project are the administration, permitting, hiring of personnel, contracting of sub-contractors, supply of equipment, fuel, camp facilities and supplies, health and safety training and compliance to all conditions of permits and licenses.

3.2 Project Organization

The Project Superintendent, Orie Wyness, conducts all physical aspects of the site remediation in consultation with the site engineer and the environmental scientist. The Project Environmental Monitor / Safety-Training Supervisor and the Project Equipment / Labour Supervisor report directly to the Project Superintendent.

The Project Superintendent is responsible for the health and safety of the operations and the compliance to all permits and licenses and has the authority over hire or dismissal of employees or contractors.

The Project Superintendent reports to the Gwich'in Development Corporation and communicates with Public Works and Government Services, Canada, Shell Canada, Ltd., D.I.A.N.D. Waste Management Program, Whitehorse, Yukon, regulatory agencies and other interested parties or stakeholders.

4. Methods

4.1 Work Plan

The project is divided into four phases and the access road will be constructed in two stages (Appendix E: map with camp locations).

Phase 1:

- meetings and agreements;
- administrative system, permits and licenses;
- viewing of access routes, camp location and site (by helicopter);
- preparation of proposal.

Phase 2:

- viewing and marking of access routes;
- service contracts / supplies / human resources;
- employee safety training;
- camp mobilization (to Fort McPherson, NWT);
- construction and maintenance of stage 1 road to camp 1 site;
- site preparation for camp 1;
- camp mobilization (to camp 1);
- construction and maintenance of stage 2 road to camp 2 site;
- site preparation for camp 2;
- camp mobilization (to camp 2);
- construction and maintenance of airfield and access to waste site.

Phase 3:

- requesting engineer and environmental scientist;
- clearing at waste site and survey;
- stripping of overburden and survey;
- excavating, boxing and hauling of contaminated soils – soil testing;
- excavating and hauling of debris to Fort McPherson landfill;
- back filling and contouring of site – survey;
- camp demobilization;
- decommission all sites and roadways-remove all equipment and waste.

Phase 4:

- project completion;
- final administrative measures;
- project report.

4.2 Schedule

Phase 1: November and December, 2000
 Phases 2 and 3: January to March, 2001
 Phase 4: April to May, 2001

4.3 Equipment

4.3.1 On site

#	Type of Equipment
1	Backhoe - track
2	D6 Dozer with winch – wide pads
1	Loader/Forklift
2	Snow drags
1	500 gal. Water tank on skids (with pump and hoses)
3	53' drop deck lowboys – tri-axle
3	Generators – tower rigger lights
1	Camp Kitchen / Washroom
1	Office / First Aid Well Site Trailer / Sleeper Washroom
1	Office / Lab Well Site Trailer / Sleeper
1	Sleeper 6 man
1	Sleeper 10 man
1	4 x 4 Super Cab – Project Superintendent
1	4 x 4 Super Cab – Engineer / Environmental Scientist
1	4 x 4 Crew Cab – Emergency Vehicle / Environmental Safety Supervisor
1	4 x 4 Crew Cab – Equipment and Labor Supervisor
1	Skidoo – Engineer / Environmental Scientist
1	Fuel Wagon (Environmental Double Wall)

4.3.2 Equipment as and when needed

Loader / Forklift; D7 Dozer / Ripper; D8 Dozer / Ripper; Water Truck; Tractor End Dumps; Tractor / Hi Boys; Tractor / Low Boys; Tractor Service; Grader / Wing Service; Helicopter and Fixed Wing Aircraft on call.

4.3.3 Other Equipment

First Aid Supplies; Communication Equipment; Protective Clothing; Fire Equipment; Trash Boxes; Food Storage Containers; Miscellaneous Tools.

4.4 Implementation and Methodology

4.4.1 Access

The construction and maintenance of the winter road and the air strip will be carried out by compacting snow. The use of a water truck to patch sections of the access route will only be implemented if necessary. Creek crossings will be constructed of snow and ice only, without the use of other materials, such as gravel or wood cribbing.

Camp 1 will be temporary near the halfway point (to allow the construction of the second portion of the winter road to the site), Camp 2 is near the waste site (13 km). At both campsites, a sump will be excavated to dispose of the wastewater. The sumps will be filled in when sites are cleared upon demobilization.

4.4.2 On Site

The site will be surveyed to assist clearing, overburden removal and stockpiling, the excavation of waste material, and the back filling and re-contouring. The engineer will direct all site work. The excavation and testing of the contaminated material will be co-directed by the environmental scientist. Quality Assurance and quality control measures and confirmatory sampling will be applied according to CCME guidelines.

The boxing of contaminated material will be carried out within the Exclusion Zone (contaminated section of the waste site and work area) and the containers will be loaded onto trucks so that no contamination is tracked from the site. The exterior of the containers is to be decontaminated prior to the loading onto the trucks. De-contamination of personnel and equipment will be overseen by the environmental monitor and safety-training supervisor in consultation with the environmental scientist, the engineer and under direct order of the project superintendent.

The overburden will be replaced, graded and contoured as directed by the engineer, to reduce the erosion of the riverbank.

4.4.3 Contaminated Material

The contaminated material will be hauled to a staging area in Fort McPherson via the winter road. The staging area will be fenced, signs will be posted and the facility will be monitored. Highway trucks will haul the contaminated material to the Hazco East Peace River landfill in Alberta. Movement of the waste material will be done in accordance with the Transport of Dangerous Goods Regulations.

Appendix A

CARIBOU / PEEL RIVER ENVIRONMENTAL PROJECT OCCUPATIONAL AND ENVIRONMENTAL HEALTH AND SAFETY ISSUES AND EMERGENCY RESPONSE PLAN

Introduction

The purpose of the project covers the removal of contaminated and non-contaminated material from the site and re-contouring of the river bank.

The Health and Safety Program is designed to anticipate, recognize, evaluate, and control adverse environmental conditions and physical hazards that may result in injury, impairment, or the exposure to toxic substances. The Emergency Response Plan provides a response to minimize the impact of an accidental release of substances that may affect the well-being of workers, and the local environment.

Location

The Peel River site is 120 km east of Eagle Plains, YT and 110 km south of Fort McPherson, N.W.T. The location is at 66° 30' 59" N and 134° 04' 16" W on the north side of the Peel River, approximately 4 km upstream of the confluence of the Caribou and Peel Rivers. The site is on an outside bend of a meander loop, in the active flood plain of the Peel River. The work area where excavation, boxing and contouring will take place comprises approximately 1 ha – 1.5 ha.

Abbreviations

The following abbreviations and definitions are used in this document:

ANSI	American National Standards Institute. Publishes consensus standards on a wide variety of subjects, including safety equipment, procedures, etc.
CEPA	Canadian Environmental Protection Act
CSA	Canadian Standards Association, the national consensus standards association for Canada is roughly the Canadian equivalent of ANSI in the US
DIAND	Department of Indian Affairs and Northern Development
ERP	Emergency Response Plan
HEPA	High Efficiency Particulate Air filter. At least 99.97% efficient in the filtration of air borne particles 0.3 microns in diameter or greater
MSDS	Material Safety Data Sheet provided by chemical manufacturers
MSHA	Mine Safety and Health Administration, an agency of the US Department of Labour

- NIOSH** National Institute for Occupational Safety & Health. An arm of the US Centres for Disease Control, it does research and suggests guidelines for exposure control, but is not a regulatory agency
- OSHA** Occupational Safety & Health Administration, a part of the US Department of Labour, it regulates many job safety issues, including chemical handling and storage; also Occupational Safety & Health Act, the US Federal legislation which created OSHA (the Administration) and NIOSH
- RMO** Resource Management Officer
- TDGA** Transport of Dangerous Goods Act
- WHMIS** Workplace Hazardous Materials Information System. This program is legislated by the Canadian government, which requires, among other things, the creation and availability of material safety data sheets

Time Table (tentative)

Approximately January – March 2000.

Communication

Mobile, private, CB channels and satellite phone will be available on site for communication and emergency calls.

Hazard Identification

- | | | |
|-------------------|---|----------------------------------------------------------------------------------------------------------------------------------------|
| Chemical Hazards | - | fuels used on site, DDTs and buried unknown chemicals |
| Explosion or Fire | - | ignition of explosive or flammable liquids |
| Physical Hazards | - | mechanical equipment, sharp objects |
| | - | increased risk of injury to personnel when wearing protective gear (if required) that may impair agility, stamina, hearing, and vision |
| | - | slipping and falling due to icy conditions |
| | - | electric shock when using power equipment in wet location or using poorly grounded tools |
| Wildlife | - | low risk |
| Weather Hazards | - | exposure to the cold and high wind-chill (frost bite) |

General Health and Safety Measures

1. All work will be conducted, as a minimum, in strict compliance to all applicable laws, ordinances, rules, regulations and orders and general practices for the safety of persons or property. The applicable requirements include any general safety rules and regulations of Yukon Workers' Compensation Health and Safety Board, WHMIS and Occupational Health and Safety legislation.

2. The Environmental Monitor / Safety Training Supervisor will be responsible for the Health and Safety legislation.
3. Prior to the start of the work, all team members will familiarise themselves with the Safety Program and Emergency Response Plan and given specific instructions on actions to be taken in case of safety violations, accidents, personal injury and emergencies.
4. Prior to commencement of specific work activities, the assessment crew will be briefed on the following safety issues:
 - safety equipment and use
 - clearing, excavation, boxing, contouring operations
 - contaminants on site
 - emergency measures in case of an accident or fire
5. A "buddy system" will also be used as a protective measure in particularly hazardous situations so that team members can keep watch on one another to provide quick aid if needed.
6. Contacts for emergency will include the DIAND project authority, the nearest RCMP detachment, the hospital in Inuvik, N.W.T., the nursing station at Fort McPherson, NWT, and the Yukon Spill Line.

Excavation

1. The potential consequences of planned clearing, excavating, boxing and contouring at the site will be considered prior to each action. Field team members assigned to work around the operating equipment will have the appropriate safety training.
2. There will be no eating, drinking or smoking near the site.
3. Excavation will be advanced slowly. If contaminants suspected of being nonaqueous phase liquids are encountered, the advancement of the excavation will be stopped.
4. Every attempt will also be made to minimize environmental impact due to spillage from any barrels encountered during excavation as per the Emergency Response Plan.

Site Controls

Site controls minimize the potential contamination of personnel, protect the public from the site's hazards and prevent vandalism.

The work zone are divided into three general areas outlined below:

- **Exclusion Zone**; the contaminated area.
- **Contamination Reduction Zone**; the area where personnel and equipment decontamination occurs.
- **Support Zone**; the uncontaminated area where personnel should not be exposed to Hazardous conditions.

Site Safety Meetings and Inspections

To ensure that the Site Safety Plan is being followed, the Safety Officer will conduct a safety meeting prior to initiating each site activity and at the beginning of each work day.

The purpose of the meetings is to:

- describe assigned tasks and their potential hazards;
- co-ordinate activities;
- identify methods and precautions to prevent injuries;
- plan for emergencies;
- describe any changes to the Site Safety Plan;
- get worker feedback on conditions affecting safety and health;
- get worker feedback on how well the Site Safety Plan is working.

The Site Safety Officer will also conduct frequent inspections of site conditions, facilities, equipment and activities. The Site Safety Officer and personnel will be responsible for inspecting the condition of their personal protective equipment and ensuring its operational condition.

First Aid

First Aid will be administered on site by the Environmental Monitor / Safety and Training Supervisor. According to the Yukon Workers' Compensation Health and Safety Board (1992), class "A" and class "B" hazards were identified for the Peel River project. The requirements for First Aid made available on site are met by an attendant with a Standard First Aid certificate, a # 2 Unit First Aid Kit (St. Johns Standard), a stretcher, and three emergency blankets. In addition to the basic requirements, a spinal board, cervical collars and a Scott Air Pack will also be on site. In case of an accident, a casualty will be transported to Inuvik, N.W.T., or depending on weather conditions, to the nearest nursing station via rotorwing. Emergency phone numbers are provided in the ERP. Every incident requiring First Aid will be recorded in an accident report.

Fires

The fire safety program includes fire prevention, fire protection and fire fighting.

1. As a preventative measure there will be no fires or burning of rubbish at the work site.
2. A person discovering a fire will report the incident to the Project Superintendent.
3. Fire extinguishers will be located on site and in each supervisors vehicle.
4. Smoking will not be permitted in hazardous areas and care will be exercised in the use of smoking materials in non-restricted areas.
5. The handling, storage and use of flammable liquids such as gasoline shall be governed by the current National Fire Code of Canada. Flammable liquids such as gasoline will be stored in approved safety cans.
6. Disposal of flammable liquids will be in accordance with all applicable environmental regulations.

Personal Protective Equipment

1. Workers will use protection appropriate to the potential type and level of exposure. The protective equipment will be fitted to cold weather conditions and meet CSA, ANSI, and NIOSH standards and guidelines.
2. Team members will be made aware that the equipment alone does not eliminate the hazard. If the equipment fails, exposure will occur, as such, hazard awareness will be a paramount component of the field program.
3. All equipment will be properly fitted and maintained in a clean and serviceable condition.
4. If at any time during the project the protective equipment is damaged, then the team member will remove, dispose and replace the damaged item.
5. Prior to leaving the work area, team members wearing personal protective equipment will remove contaminated coveralls, boot covers, respirator cartridges and gloves.
6. The protective equipment will be provided by the work parties according to specific work performed.
 - GDC will provide safety gear for drilling operations.
 - Royal Roads University will provide safety gear for sampling, handling of chemical substances, and chemical emergencies (suits and respirators).
 - GDC will provide general safety gear required to work on site (hard hats, steel-toe boots, gloves and ear and eye protection).

Head Protection

Head protection against impact blows will be provided when required in the form of a protective hat with a liner and chin strap, which will be able to resist penetration and absorb the shock of a blow. The hat will meet CSA standard Z94.1.

Foot Protection

For protection against falling or rolling objects, sharp objects, wet, slippery surfaces workers will use appropriate insulated safety shoes or boots. Safety shoes will be sturdy, have an impact-resistant toe and meet CSA Standard Z195 or ANSI standards. In case of an emergency spill, team members responding will wear protective boot covers.

Eye and Face Protection

When required, protection will be based on the kind and degree of hazard present. Available equipment will include goggles, safety glasses, and face shield. The eye protectors will meet the requirements of CSA Z94.3 or ANSI standards.

Ear Protection

To avoid exposure to high noise levels disposable phone earplugs or earmuffs will be made available.

Arm and Hand Protection

Absorption of chemicals, cuts and burns are examples of hazards associated with arm and hand injuries. Insulated rubber gloves and leather gloves will be provided for protection from these hazards. These gloves will conform to CSA and ANSI standards.

Body Protection

Full body hooded chemical-resistant disposable coveralls will be made available for emergency response. A variety of other protective clothing including vests, jackets, aprons and insulated coveralls will be used by team members.

Respiratory Protection

It is anticipated that exposure to harmful concentrations of air contaminants may result from temporary or emergency conditions. In such a scenario, the exposed team members will wear protective respiratory equipment to prevent breathing air contaminated with harmful dusts (including asbestos), fumes, gases and vapours. The selection of protective respirators equipment will be made according to the guidance of NIOSH or MSHA or ANSI Practices for Respiratory Protection and will include Air Purifying Respirator with HEPA cartridge and chemical cartridge.

Appendix B

EMERGENCY RESPONSE PLAN

This Emergency Response Plan (ERP) includes actions to be taken to reduce the impact of spillage for release of, or substantial threats of release of hazardous materials and non-aqueous phase liquids from barrels and other containers encountered during drilling and test pit excavation. A list of emergency contacts, including those for medical emergencies and emergency reporting are given below.

Project Management:

Gwich'in Development Corporation
 Caribou / Peel River Environmental Project
 P.O. Box 121
 Fort McPherson, NWT

(867) 952-2113

Yukon Spill Line:

(867) 667-7244

Hospital Inuvik, N.W.T.:

(867) 979-2955

Ambulance Inuvik, N.W.T.:

(867) 979-4357

Nursing Station Fort McPherson, N.W.T.: (867) 952-2586
 Indian and Northern Affairs, Field Operations, Dawson, YT
 RMO: (867) 993-5468

RCMP Fort McPherson, N.W.T.:

(867) 952-2551

Special Advisor:

Hazco Environmental Services, Calgary, ALTA

Don Freison

(403) 297-0456

INCIDENT: HAZARDOUS MATERIAL OR NONAQUEOUS PHASE LIQUID SPILL

The response measures include:

1. Contain spill source and prevent from spreading.
2. Air monitor for explosive or toxic gases. If a hazardous condition is found, the appropriate protective equipment will be used.
3. Mobilize spill control kit. The kit will include:
 - Personal protective equipment
 - Recovery drum
 - Absorbent material
 - Hand shovel

- Small pail for scooping up liquid
 - Plastic sheeting
4. Recover spill and contaminated material and place in recovery drum.
 5. Ensure spill is secure.
 6. Implement a decontamination procedure before any employee or equipment leaves the area of potential hazardous exposure.
 7. Transport recovery drum to temporary storage area. A polyethylene drop sheet will be secured to the ground at the temporary storage area
 8. The sorting, packaging, transportation and disposal of all hazardous materials and waste encountered will be in accordance to all applicable regulations including the TDGA and CEPA.
 9. Prepare spill report.
 10. Call the Yukon Spill Line.

INCIDENT: SERIOUS INJURY

1. Call for help.
2. Assess hazards at the site; if necessary make area safe.
3. Initial First Aid.
4. Evacuate casualty to the hospital in Inuvik, N.W.T.
5. Prepare report.

INCIDENT: FIRES

1. A person discovering a fire will report the incident to the Project Manger.
2. Fire suppression equipment will be made available. If a fire is not promptly extinguished, the RMO in Dawson, YT will be notified immediately.

Appendix C

FUEL AND OIL SPILL CONTINGENCY PLAN NORTHWEST TERRITORIES

INTRODUCTION

Purpose of the Plan

The purpose of this plan is to provide a safe response strategy should a fuel or oil spill occur. This **strategy administers** the protection of human life, to minimize the environmental impact and effects, and to follow proper procedures of a cleanup operation

Support Program Description

Project Name:	Public Works and Governanent Services Canada Remediation of Peel - Caribou Project #404596
Location of Fuel	Camp #2 Site approximately 8 miles from Caribou/Peel River
Transfer/Storage:	Project Site
Fuel Deliver:	January 2001 - March 2001
Administration:	Gwich'in Tribal Council Charles Koe Building P.O. Box 30 Fort McPherson, NWT Canada XOE OJO (867) 952-2330 (Office) (867) 952-2212 (Fax)
Project Management:	Gwich'in Development Corporation Caribou/Peel River Envirownental Project P.O. Box 121 Fort McPherson, NWT Canada XOE OJO (867) 952-2113 (Office) (867) 952-2330 (Messages)

Contact Lists**Government**

GNWT	24 Hour Spill Line	(867) 920-8130
DIAND	Whitehorse Brett W. Hartshome District Manager	(867) 667-3268
	Royal Roads University Environmental Scientist (On Site)	
	Project Engineer (On Site)	
GNWT	Yellowknife Emergy Paquin Environmental Protection Services	(867) 873-7654
ESP FISHERIES & CCG	Hay River Base Manager	(867) 874-5500
SHELL CANADA (Phone)	C.B. Consulting Ltd.	(403) 288-7253
	C.A. (Carl) Bonke	(403) 620-7301 (Cell) (403) 288-7392 (Fax)

Gwich'in Development Corporation
Caribou - Peel River Environmental Project

<u>Position</u>	<u>Person</u>	<u>Location</u>	<u>Phone</u>
Project Manager	Orie Wyness (On Site)	Fort McPherson	(867) 952-2113
Environmental Monitor/Safety- Training Supervisor	T.B.A.	Fort McPherson	(867) 952-2113
Supervisor Equipment/Labour	T.B.A.	Fort McPherson	(867) 952-2113

SCOPE OF SPILLS

Fuel Trucks Transfer

Diesel fuel on frozen ground, snow or ice from a vehicle or valve, hose or tank leak while transporting fuel.

Tank Storage

Diesel fuel on ground, snow or ice, from one or more 500 gal. self-contained double walled tanks or leaky valve while storing fuel.

Personnel Spill Response - On Site

1. Orie Wyness
 Project Manager

2. Project Equipment/Labour Supervisor

3. Project Environmental Monitor
 Safety-Training Supervisor

INITIAL RESPONSE ACTIONS

- Upon discovery of a spill, the first person on the scene:
- Protects the safety and lives of anyone of the spill area.
- Isolates or removes any potential ignition sources if safe and possible.
- Locates likely source or cause of spill and stops flow or release (do not take unnecessary risks).
- Assess the likely size, extent and conditions or spill.
- Notifies immediate supervisor with information*
- Controls access to area until assistance arrives.
- Attempts to contain spread of spill, using available equipment and materials.
- Records all relevant information for reporting purposes.
- Upon notification that a spill has occurred, the supervisor will notify GNWT @ 24 hours Spill Number (867) 920-8130, and Project Engineer (DIAND).

FUEL AND OIL SPILL RESPONSE EQUIPMENT**Staging Area**

The following small inventory of oil spill response equipment will be maintained at the staging area.

Fuel transfer pump c/w hoses, couplings. etc.

Sorbent Blanket/sheets

Non-Steel scoop shovels

205 liter empty drums with lids off

Logistic Support

Staging Area: Campsite (2) D6 or D8 Dozer
 (1) Cat Loader

Fuel Delivery and Transfer Description

The fuel will be trucked from Fort McPherson to the staging area via the Dempster Highway access road. Bulk diesel fuel will be off-loaded by means of a pump and hose between the fuel tanks, storage tanks to Tide tanks/trucks from Tide tank to equipment. Environmental Monitor/Safety Training Supervisor present at all times. Fill up requirements consisting of (8) 500 gal., self contains double wall on FE-Boy trailer which will be setback a minimum distance of 6 miles from Caribou - Peel Rivers.

Winter Spills on Land

Detection

Areas are usually snow covered and limits are highly visible. Check daily by Environmental Monitor/Safety Training Supervisor.

Probing will locate spill area under a depth of snow.

Containment

Build frozen snow dikes to contain spill.

Recovery

Pump liquid product into empty drums or tanks for future acceptable disposal.

Transportation

TDG waste manifest if necessary.

Contaminated Snow Cleanup

Use mechanical and hand equipment to scrape up product-in-snow mixture and load into dump trucks or other suitable container.

Haul product-in-snow mixture to a suitable site with pit or container facilities (e.g. Inuvik).

Caution

If terrain conditions indicate long term terrain damage may result by bulldozer scraping, then hand cleanup may be necessary with a final cleanup done as the snow melts and the terrain surface starts to thaw.

Burning

If a spill is moving toward a higher environmental or safety concern, an immediate burning may be desirable i.e. creek open water or residence. This decision will be made by the Field Supervisor or Project Engineer. Every effort will be made to protect the spill area from other combustible material before burning. All residue after the burn is to be picked up and disposed of in accordance to applicable laws.

Winter Spills on Ice

Caution

Be sure to check ice thickness for load bearing capacity.

Detection

Determine perimeter of spill area.

Burning

If the spill is moving towards cracks in the ice or open water then an immediate burning may be desirable. This decision will be made by the Field Supervisor or Project Manager. All residue after the burn is to be picked up and disposed of in accordance to applicable laws.

Containment

Construct frozen snow dikes or ice trenches around perimeter of spill for containment.

Prevent escape of product into cracks

- dike off
- seal with snow/water mixture

Transportation

TDG waste manifest if necessary.

Recovery

Recover pumpable product and store in steel drums or tanks for future disposal.

Cleanup

Pick up contaminated snow using mechanical equipment or hand labour.

Store in steel drums for future disposal or transport by means of dump truck to a disposal site.

Use sorbent to clean up remaining contained product.

Recover sorbents used and place into steel drums for future disposal.

Soil Removal

Contaminated soil may be removed to storage for acceptable disposal. In most cases, however, contaminated soil should be left in place and the hydrocarbon contaminant allowed to biodegrade. Enhancement of this process through use of amendments may also be warranted.

GNWT Department of Renewable Resources recommends that use of this method be done in consultation with D~, MACA & GNWT.

Disposal

The following are a number of methods available in the Inuvik area for the disposal of oil spill products. All methods will be in accordance to Lake Use Permit conditions.

1. In-Situ Burning at Spill Site

In the case of a major spill, some of the fuel released at the site may be disposed of through in-situ burning. Precautions must be taken to ensure fire cannot burn back to fuel storage tanks.

2. Open Pit Burning

Incineration of oiled debris in open pits or open top barrels in another alternative at remote sites.

Surface burning, using berms and built-up areas where possible, if preferred to disturbing the permafrost substructure.

3. Burial

Another method of disposal of large quantities of oil and oil contaminated debris could be by burial.

Permission must be granted through a land use permit obtained from Gwich'in Land and Water Board or DIAND.

Contacts:

Robert Alexie, Executive Director, GLWB, Inuvik (867) 777-4954

Rudy Cockney, DIAND, District Manager, Inuvik (867) 777-3361

If there is a possibility of oil spill debris disposal in Inuvik or any other community, permission may also be required from the Government of the Northwest Territories.

Contact: Regional Superintendent (GNWT, Inuvik) (867) 777-7200

4. Waste Oil Disposal Site - Inuvik

Oil contaminated snow and recovered oil, either fluid or frozen, may be transported to the oil disposal facilities in Inuvik. The oil can then be burned or recovered by gravity separation and skimming in spring thaw.

Arrangements to receive any spill material must be made with Imperial Oil Resources prior to its transport to Inuvik.

Appendix I

Arctic Spill Control Containment and Recovery General Guidelines

Following are a number of guidelines for oil spill containment in the Arctic. These guidelines are not specific but rather are of a general nature. Included is a description of the techniques employed for the construction of snow and ice containment dikes.

A. PRINCIPLE OF CONTAINMENT

1. Confine spill to smallest manageable area possible.
2. Channel flow to containment area.
3. Keep spill out of running water.
4. Location and size of the containment area must be decided before the time of the event in contingency planning considering:
 - the safety of personnel.
 - the safety of equipment, camp, etc.
 - the scope of the spill.
 - the condition of the ice or tundra surface.
5. The following table will serve as a guide for the size of containment areas.

AREA OF CONTAINMENT IN SQUARE METERS
FOR INDICATED DEPTH OF FLUID

<u>Volume in m³</u>	<u>0.15m</u>	<u>0.30m</u>	<u>0.46m</u>
160	1040	520	340
320	2030	1040	700
760	5200	2600	1700
1600	10400	5200	3500
3200	20800	10400	7000

C. CONTAINMENT

1. Snow dikes can temporarily contain oil spill on ice.
2. Good unbroken ice will support oil in depths as follows.

<u>Ice Thickness</u>	<u>Oil Depth</u>
0.5 meters (1.5 ft.)	0.15 meters (0.5 ft.)
1.0 meters (3.3 ft.)	0.30 meters (1.0 ft.)
1.5 meters (5.3 ft.)	0.45 meters (1.5 ft.)

The size of the containment area and depth of liquid becomes dependent upon ice thickness.

3. If ice thickness is inadequate to support construction equipment for spill containment, a spill will be left undisturbed and will be cleaned up as soon as ice conditions permit.

D. SNOW DIKE CONSTRUCTION ON ICE

The ice surface inside the dike area should be scraped clean of snow if possible. Oil mixed with snow produces mulch which makes disposal difficult.

1. Establish and stake perimeter of area to be diked.
2. Windrow snow approximately 1 (one) meter high with Cats and Graders onto the staked dike perimeter in the same fashion as snowplowing a road, utilizing snow from both sides of the dike. Cats must use an angled blade for this type of work.
3. Spray water onto the window at a rate of approximately 14 cubic meters (3,000 gallons) per 200 meters of window.
4. Level windrow with Cat using a straight blade and pack snow with tracks, establishing the first layer or first 0.3 meters (1 ft.) of dike.
5. Re-water the dike and pack with cat tracks, water at approximately the same rate as before or until the snow packs well. Underwatering will cause the snow to stay loose. This may be corrected by adding more water. Over watering will cause the cat tracks to sink into the mash snow. This may be corrected by dozing and mixing loose snow into the mash until the material will pack.
6. For the second layer or second 0.3 meters (1 ft.) of dike, doze or grade 0.5 meters (1 foot) of dike, doze or grade 0.5 meters (1 1/2ft.) of snow onto the existing dike and water at the same rate as before.
7. Level top of dike, re-water and pack cat tracks.

8. Steps 6 and 7 are to be carried on until the desired height has been reached.
9. The final finishing of the dike will be done by a grader using a snow-wing to cut a 2:1 backslope, rolling surplus material to the top of the dike where it will be levelled by the Cat.
10. A final spray of water over the top and the slopes of the dikes will consolidate the material and prevent wind erosion.

The estimated time to build a dike as described above 1 meter high and 4.5 meters wide, is approximately three hours per bulldozer for 30 meters (100 feet) of dike, providing that snow and equipment are readily available.

E. SURFACE PREPARATION FOR DIKE CONSTRUCTION ON TUNDRA

1. Clean and smooth the tundra surface at least 15 meters (50 ft.) wide by snow to both sides of the perimeter of the area to be diked.
2. Spray water onto the cleared area, starting at the highest point, as a certain amount of water will migrate under the tundra toward the lower area. Allow water to freeze and re-water as required to transform the active layer into solid ice.
3. Blade snow in thin, 3 cm to 8 cm (1 -3 ") layers over the area utilising the snowbanks from both sides, water the snow and blade and pack this water saturated material over the area to obtain a proper seal across the rough tundra. The amount of water required to prepare the tundra surface will depend on the depth and on air voids present in the active layer. Time required will depend on frost conditions.
4. After the first section of the surface cover is completed, dike construction can proceed as outlined in Section C.

Appendix D

Camp Policies

Contractor shall provide and operate complete construction camp services, including provision, preparations and serving of food, as required for construction personnel, engineer and his authorized personnel, and other specified site visitors.

Provisions of construction camp services consists of design, supply, installation, operation and maintenance of construction camp including all associated facilities, utilities and services required for camp such as heating, lighting, fuel, potable and domestic water systems, sewage collection, treatment and disposal system, waste, refuse and garbage collection and disposal system, camp fire prevention, alarm and fire fighting system, camp safety and security service, meals and catering service, sleeping and washroom facilities, bedding and bedding laundry service, janitorial service, personnel laundry facilities, and recreational facilities.

Construction camp including its facilities, utilities, services, location and operation is subject to engineer's approval and is to be designed, established and operated in accordance with applicable federal, territorial and local codes, regulations and requirements governing construction camps.

Obtain applicable licences, permits and authorization prior to establishing camp. Submit proof of same to site engineer and display all applicable regulatory permits at each camp site.

Place all camp buildings and facilities so as not to interfere with any construction or other site activities.

Camp generators are inherently noisy, and can disrupt sleep, and be a constant source of irritation. Camp generators shall not be located adjacent to any sleeping facility, camp kitchen or any area with constant human presence, be remotely located 50' or more from main camp site, prevent exhaust fumes from blowing through camp during prevailing winds.

Maintain camp buildings, power plant, fuel storage facilities, water lines, sewage system, garbage disposal containers, heating and cooling units, appliances and furniture in neat, clean and good operating condition and make repairs as necessary.

Install, hook up, test and make necessary repairs to sewerage, water supply, heating and electrical services.

Particular attention is to be paid towards obtaining potable water. Potential sources for potable water sources must be sampled, tested and approved by an environmental health officer. Use of bottled water for drinking and cooking with approved water coolers is acceptable.

Separate space is to be provided for cook's, cook's helpers and for female staff. Maximum two people per unit.

Maintain and clean all camp buildings daily, clean and sanitize toilets, urinals, showers, wash basins, washing machine and laundry tubs daily.

Supply three blankets, two sheets, one bath towel, one face cloth, one pillow case for each person living in camp.

Change two sheets and one pillow case once per week or whenever a change of occupant occurs.

Launder sheets and covers regularly to provide weekly supply of clean linen.

Provide clean blankets to all camp occupants, change blankets as conditions warrant.

Kitchen staff shall wear suitable kitchen attire. Launder kitchen attire daily. Groceries to be top quality, eggs and dairy products to be grade "A". Canned fruit and vegetables to be Choice or Fancy.

Beef to be Canada Grade "A". Pork to be Grade "I". Turkey, chicken or other fowl to be "Utility" or better.

Breakfast to include fruit juice or fruits, coffee, tea, milk, hot and cold cereals, porridge, toast and preserves, peanut butter, hot cakes, eggs, bacon, ham and sausages.

Lunch to include soup and lunch meat sandwiches, juices, fruits, tea, milk and coffee.

Supper to include vegetables, desserts and two main courses, one of which is "First Line".

Non-site persons will be charged the following rates, unless approved by the Project

Superintendent: {per person} breakfast \$ 11.65, lunch \$12.05, supper \$34.15
Accommodations \$50.00.

A camp of this size and nature in a remote location requires that certain basic rules be established for mutual benefit of all camp residents. Camp rules shall cover such items as property damage, smoking, use of alcoholic beverages, drugs, firearms, security, nuisance and any other matters to make camp an orderly, well managed operation.

There will be a zero tolerance for alcohol and drugs. Any person under the influence of either alcohol or drugs will be requested to leave the site. Failure to comply with the request will result in the RCMP being summoned.

There will be no smoking of tobacco products in camp. Any person wanting to smoke must go outside.

Any person causing property damage to camp or any component of the project will be dismissed and charged by the RCMP.

No persons can have firearms on the site. The Environment / Safety Training Supervisor will have a firearm on site for safety reasons. The firearm will be stored according to the provisions of the Federal Firearms Act.

There will be no unauthorised persons allowed on access roads, campsite or construction site, without prior approval from Project Management.

Any person causing a disturbance by, swearing, shouting or being a nuisance will be asked to leave the site. Failure to comply with the request will result in the RCMP being summoned.

In case of a fire alarm, all personnel will meet in the yard outside of camp for a head count by the Environmental Monitor / Safety Supervisor. Duties will be assigned as per fire fighting plan.

There will be a mobile and satellite telephone on site for communication purposes.