

NORTHWEST
TERRITORIES
WATER BOARD



ALBERTA
WATER BOARD

WATER REGISTER: N7L1-1777

December 13, 2002

Mr. Pete Millman
Environmental Planner
Devon Canada Corporation
1600, 324 - 8 Avenue S.W.
CALGARY, AB T2P 2Z5

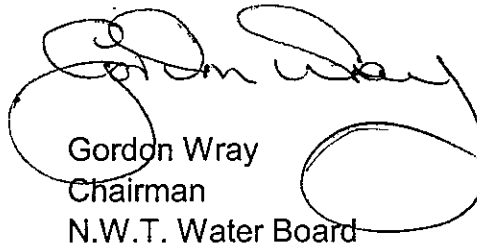
Dear Mr. Millman:

ASSIGNMENT OF WATER LICENCE N7L1-1777

The Northwest Territories Water Board has reviewed your Application for Assignment of Licence and hereby approves the assignment of Water Licence N7L1-1777 from Petro-Canada to Devon Canada Corporation. Devon Canada Corporation will fulfill all terms and conditions of the existing Water Licence N7L1-1777, and as amended on December 13, 2002.

If you required further information, please contact this office. For enquiries of a technical nature, contact Ms Sarah Aho at 669-2402 or Mr. David Milburn at 669-2650, of the Water Resources Division.

Sincerely,



Gordon Wray
Chairman
N.W.T. Water Board



November 30, 2001

Mr. Don Thompson
Logistics Superintendent, Drilling
Petro Canada
150 - 6 Avenue S.W.
CALGARY, AB T2P 3E3

Dear Mr. Thompson:

ISSUANCE OF A "B" TYPE LICENCE - KURK/NAPARTOK

Attached is a duplicate of Licence No. N7L1-1777 granted to Petro Canada by the Northwest Territories Water Board in accordance with the *Northwest Territories Waters Act*. The other original of this Licence has been filed with the Department of Indian Affairs and Northern Development in Yellowknife, Northwest Territories.

Also attached are general procedures for the administration of licences in the Northwest Territories. I request that you review these and address any questions to the Board's office. Please note Part B, Item 6 of this Licence which requires Board notification of selected wellsite prior to the commencement of drilling.

In conclusion, please be advised that this letter with attached procedures, all inspection reports, and correspondence related thereto are part of the public Water Register, and are intended to keep all interested parties informed of the manner in which the Licence requirements are being met. All Water Register material will be considered when the Licence comes up for renewal or amendment.

The full cooperation of Petro Canada is anticipated.

Sincerely,

Gordon Wray
Chairman
N.W.T. Water Board

Attach.

**GENERAL PROCEDURES FOR THE ADMINISTRATION OF LICENCES
ISSUED UNDER THE NORTHWEST TERRITORIES WATERS ACT
IN THE NORTHWEST TERRITORIES**

1. At the time of issuance, a copy of the Licence is placed on the Water Register in the Office of the Northwest Territories Water Board in Yellowknife, and is then available to the public.
2. To enforce the terms and conditions of the Licence, the Minister of Indian Affairs and Northern Development has appointed Inspectors in accordance with Section 35(1) of the *Northwest Territories Waters Act*. The Inspectors coordinate their activities with officials of the Water Resources Division of the Department of Indian Affairs and Northern Development. The Inspector responsible for Licence No. N7L1-1777 is located in the North Mackenzie -Inuvik District Office.
3. To keep the Water Board and members of the public informed of the Licensee's conformity to Licence conditions, the Inspectors prepare reports which detail observations on how each item in the Licence has been met. These reports are forwarded to the Licensee with a covering letter indicating what action, if any, should be taken. The inspection reports and covering letters are placed on the public Water Register, as are any responses received from the Licensee pertaining to the inspection reports. It is therefore of prime importance that you react in all areas of concern regarding all inspection reports so that these concerns may be clarified.
4. If the renewal of Licence No. N7L1-1777 is contemplated it is the responsibility of the Licensee to apply to the Water Board for renewal of the Licence. The past performance of the Licensee, new documentation and information, and points raised during a public hearing, if required, will be used to determine the terms and conditions of any Licence renewal. Please note that if the Licence expires and another has not been issued, then water and waste disposal must cease, or you, the Licensee, would be in contravention of the *Northwest Territories Waters Act*. It is suggested that an application for renewal of Licence No. N7L1-1777 be made at least eight months in advance of the Licence expiry date.
5. If, for some reason, Licence No. N7L1-1777 requires amendment, then a public hearing may be required. You are reminded that applications for amendments should be submitted as soon as possible to provide the Water Board with ample time to go through the amendment process. The process may take up to six (6) months or more depending on the scope of the amendment requested.

6. Specific clauses of your Licence make reference to the Board, Analyst or Inspector. The contact person, address, phone and fax number of each is:

BOARD: Executive Assistant
Northwest Territories Water Board
Box 1500
YELLOWKNIFE, NT X1A 2R3
Phone No: (867) 669-2772
Fax No: (867) 669-2719

ANALYST: Analyst
Water Laboratory
Northern Affairs Program
Department of Indian Affairs
and Northern Development
Box 1500, 4601 - 52nd Avenue
YELLOWKNIFE, NT X1A 2R3
Phone No: (867) 669-2780
Fax No: (867) 669-2718

INSPECTOR: Inspector
North Mackenzie-Inuvik District Office
Northern Affairs Program
Department of Indian Affairs
and Northern Development
P.O. Box 2100
INUVIK, NT X0E 0T0
Phone No: (867) 777-3361
Fax No: (867) 777-2090

7. Your Licence requires a security deposit be submitted. The contact person, address, phone and fax number of the individual administering security deposits is:

Office Co-ordinator
Water Resources Division
Northern Affairs Program
Indian and Northern Affairs Canada
Box 1500
YELLOWKNIFE, NT X1A 2R3

Phone No: (867) 669-2754
Fax No: (867) 669-2716

NORTHWEST TERRITORIES WATER BOARD

Pursuant to the *Northwest Territories Waters Act* and Regulations the Northwest Territories Water Board, hereinafter referred to as the Board, hereby grants to

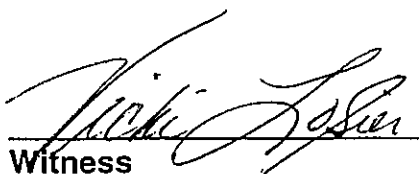
PETRO CANADA
(Licensee)
150 - 6 Avenue S.W.
of CALGARY, ALBERTA T2P 3E3
(Mailing Address)

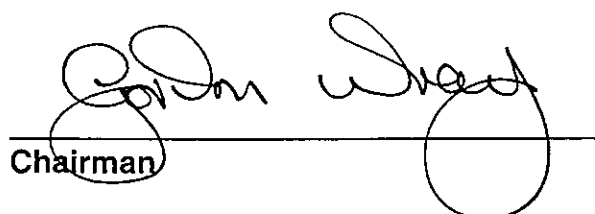
hereinafter called the Licensee, the right to alter, divert or otherwise use water subject to the restrictions and conditions contained in the *Northwest Territories Waters Act* and Regulations made thereunder and subject to and in accordance with the conditions specified in this Licence.

Licence Number	<u>N7L1-1777</u>
Licence Type	<u>"B"</u>
Water Management Area	<u>NORTHWEST TERRITORIES 07</u>
Location	<u>Kurk/Napartok Winter 2001/2002</u> <u>Latitude 68°28'19" to 69°08'52" N. and</u> <u>Longitude 134°28'01" to 135°30'57" W.</u> <u>NORTHWEST TERRITORIES</u>
Purpose	<u>TO USE WATER AND DISPOSE OF</u> <u>WASTE FOR MUNICIPAL AND</u> <u>INDUSTRIAL UNDERTAKINGS</u>
Description	<u>OIL AND GAS EXPLORATION</u>
Quantity of Water Not to be Exceeded	<u>1000 CUBIC METRES DAILY</u>
Effective Date of Licence	<u>DECEMBER 1, 2001</u>
Expiry Date of Licence	<u>DECEMBER 31, 2002</u>

This Licence issued and recorded at Yellowknife includes and is subject to the annexed conditions.

NORTHWEST TERRITORIES WATER BOARD


Witness


Chairman

PART A: SCOPE AND DEFINITIONS

1. Scope

- a) This Licence entitles Petro-Canada to use water and dispose of waste for municipal and industrial undertakings in the Mackenzie Delta for the Kurk/Napartok Winter 2001/2002 Drilling Program which entails drilling one (1) new well selected from four (4) potential locations within the Napartok area; and one (1) winter well of a potentially short duration selected from five (5) locations within the Kurk area, as depicted in table below:

Well Reference	Location
Kurk Program	
J-48	Latitude 69°07'30"N and Longitude 135°25'58"W
C-59	Latitude 69°08'13"N and Longitude 135°29'01"W
B-09	Latitude 69°08'08"N and Longitude 135°30'57"W
K-09	Latitude 69°08'39"N and Longitude 136°16'52"W
M-49	Latitude 69°08'52"N and Longitude 135°26'54"W
Napartok Program	
N-03	Latitude 68°32'59"N and Longitude 134°31'24"W
A-56	Latitude 68°35'08"N and Longitude 134°28'01"W
F-29	Latitude 68°28'19"N and Longitude 134°36'24"W
B-12	Latitude 68°31'01"N and Longitude 134°33'33"W

and associated camp, Northwest Territories;

- b) This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the *Northwest Territories Waters Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited this Licence shall be deemed, upon promulgation of such Regulations, to be automatically amended to conform with such Regulations; and

- c) Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. **Definitions**

In this Licence: **N7L1-1777**

"Act" means the *Northwest Territories Waters Act*;

"Analyst" means an Analyst designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act*;

"Artesian Aquifer" means a water-bearing rock stratum, which when encountered during drilling operations, produces a pressurized flow of groundwater that reaches an elevation above the water table or above the ground surface;

"Board" means the Northwest Territories Water Board established under Section 10 of the *Northwest Territories Waters Act*;

"Drilling Fluids" mean any liquid mixture of clay, water or chemical additives pumped downhole;

"Inspector" means an Inspector designated by the Minister under Section 35(1) of the *Northwest Territories Waters Act*;

"Licensee" means the holder of this Licence;

"Minister" means the Minister of Indian Affairs and Northern Development;

"Maximum Average Concentration" means the running average of any four consecutive analytical results, or if less than four analytical results collected, and submitted to the Inspector in accordance with the sampling and analysis requirements specified in the "Surveillance Network Program";

"Modification" means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

"Permeability" means the capacity to transmit water through a medium;

"Project Description" refers to the report titled "Project Description for the Proposed Petro-Canada Kurk/Napartok Winter 2001/2002 Drilling Program", dated August 2001, prepared by Inuvialuit Environmental & Geotechnical Inc.;

"Regulations" mean Regulations proclaimed pursuant to Section 33 of the *Northwest Territories Waters Act*;

"Sewage Treatment Facility " comprises the engineered structures that are designed to contain and treat sewage;

"Sewage" means all toilet waste and greywater;

"Sump" means an excavation with an impermeable layer for the purpose of catching or storing fluids.

"Waste" means waste as defined by Section 2 of the *Northwest Territories Waters Act*; and

"Waters" mean waters as defined by Section 2 of the *Northwest Territories Waters Act*.

PART B: GENERAL CONDITIONS

1. The Licensee shall file a Final Report with the Board not later than March 31st of the year following the calender year reported which shall contain the following information:
 - a) the total quantity in cubic metres of fresh Water obtained from all sources;
 - b) the total quantities in cubic metres of each and all Waste discharged;
 - c) details of work completed;
 - d) details on the restoration of any Sumps;
 - e) a list of spills and unauthorized discharges;
 - f) results from monitoring programs; and
 - g) any other details on water use or waste disposal requested by the Board within forty-five (45) days before the annual report is due.
2. Meters, devices or other such methods used for measuring the volumes of water used and waste discharged shall be installed, operated and maintained by the Licensee to the satisfaction of an Inspector.

3. The Licensee shall comply with the "Surveillance Network Program" annexed to this Licence, and any amendment to the said "Surveillance Network Program" as may be made from time to time, pursuant to the conditions of this Licence.
4. The "Surveillance Network Program" and compliance dates specified in the Licence may be modified at the discretion of the Board.
5. Prior to the use of water for municipal and industrial undertakings or the disposal of waste and pursuant to Section 17(1) of the *Act* and Section 12 of the Regulations, the Licensee shall have posted and shall maintain a security deposit of Two Hundred Fifty Thousand (\$250,000.00) Dollars in a form suitable to the Minister.
6. Prior to the commencement of drilling, the Licensee shall notify the Board of the wellsite locations, as described in Part A, Item 1 a), which have been selected for drilling.
7. The Licensee shall ensure a copy of this Licence is maintained at the site of operation at all times.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain Water from the Mackenzie River, a nearby unnamed lake as indicated in the Project Description or as otherwise approved by an Inspector.
2. The daily quantity of water used for all purposes shall not exceed 1000 cubic metres.
3. The water intake hose used on the water pumps shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. All sewage shall be directed to the Sewage Disposal Facility or as otherwise approved by the Inspector.
2. All Waste discharged from the Sewage Disposal Facility shall be directed to the land surface at a location approved by an Inspector.
3. All Waste discharged from the Sewage Disposal Facility shall meet the following interim effluent quality requirements:

<u>Sample Parameter</u>	<u>Maximum Average Concentration</u>
BOD ₅	70.0 mg/L
Total Suspended Solids	70.0 mg/L
Faecal Coliforms	10E4 CFU/dL
Oil and Grease	5.0 mg/L

The Waste discharged shall have a pH between 6 and 9.

4. The Licensee shall contain all wastes that do not meet the requirements in Part D, Item 3 in a sewage sump at a location approved by an Inspector.
5. All waste discharged from the sewage sump shall meet the requirements in Part D, Item 3.
6. The Licensee shall, to the satisfaction of an Inspector, contain all drilling Waste in a drilling Sump near the drill site, or at an alternate Sump location as approved by an Inspector.
7. Sumps shall be constructed of materials that normally exhibit low Permeability and in a manner that prevents intrusion of runoff Water.
8. In the event the initial Sumps do not consist of low permeability materials, the Licensee shall construct offsite Sumps to the satisfaction of an Inspector.

9. The Licensee shall construct and maintain the Sumps to the satisfaction of an Inspector.
10. There shall be no disposal of Drilling Fluids from the Sumps into any Waters or onto any land surface where Drilling Fluids may enter any Waters.
11. The Licensee shall ensure that Chloride concentrations at SNP Station 1777-2 do not exceed 100,000 mg/L.
12. In the event where decanting supernatant from the drilling Sump is required by an unanticipated event, the Licensee shall:
 - a) advise an Inspector;
 - b) obtain a representative sample from the Sump using the information requirements outlined in the "Sampling and Analytical Requirements for Characterization of Sump Supernatant Fluids" (Appendix A);
 - c) submit the results of the sampling and analyses to an Inspector as soon as possible; and
 - d) indicate in writing to an Inspector;
 - i) the nature of the unanticipated event;
 - ii) the method of decant;
 - iii) the direction of flow;
 - iv) the location of where the decanted effluent is expected to go; and
 - v) any treatment that will be applied to the Sump.
13. Licensee shall prior to abandonment of the Sumps, obtain a representative sample from the Sump using the information requirements outlined in the "Sampling and Analytical Requirements for Characterization of Sump Supernatant Fluids" (Appendix A).

14. If during the drilling, an Artesian Aquifer is encountered producing water flowing at the surface, the Licensee shall notify an Inspector immediately. A sample of not less than ten (10) litres shall be collected from the flowing source at the point of discharge from the well. Five (5) litres shall be made available to an Inspector for analysis, and the Licensee shall have the remaining five (5) litres analysed.
15. Any fluids generated to surface, including those produced from an Artesian Aquifer, shall be contained and shall not be disposed of without approval of an Inspector.
16. All analyses shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater" or by such other methods as may be approved by an Analyst.
17. No oil-based Waste products are to be disposed of on-site. Oil-based additives and drill cuttings associated with these additives are to be disposed of at an approved offsite location to the satisfaction of an Inspector.
18. Any on-site treatment of oil-based Waste products must be done with the approval of an Inspector.
19. Lost circulation that may contaminate groundwater must be immediately reported to an Inspector.
20. The Licensee shall dispose of all solid Waste in a manner acceptable to an Inspector.

PART E: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written approval from the Board, carry out Modifications to the planned undertakings provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
 - a) the Licensee has notified an Inspector in writing of such proposed Modifications at least five (5) days prior to beginning the Modifications;

- b) such Modifications do not place the Licensee in contravention of either this Licence or the *Act*;
 - c) an Inspector has not, during the five (5) days following notification of the proposed Modifications, informed the Licensee that review of the proposal will require more than five (5) days; and
 - d) an Inspector has not rejected the proposed Modifications.
- 2. Modifications for which all of the conditions referred to in Part E, Item 1 have not been met may be carried out only with written approval from an Inspector.
 - 3. The Licensee shall provide to the Board as-built plans and drawings of the modifications referred to in this Licence within ninety (90) days of completion of the modifications.

PART F: CONDITIONS APPLYING TO STREAM AND WATER BODY CROSSINGS

- 1. The Licensee shall ensure that only clean snow is used on all stream or water body crossings and that no debris is left on the surface of the crossings.
- 2. Stream or water body crossings shall be notched or removed before spring break-up to facilitate natural flow.
- 3. The removal of naturally occurring material from the bed or banks of any stream or water body below the ordinary high water mark is not permitted.

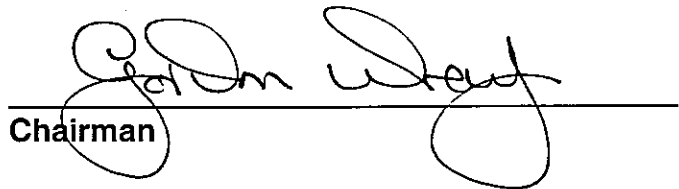
PART G: CONDITIONS APPLYING TO CONTINGENCY PLANNING

- 1. Prior to the commencement of operations, the Licensee shall submit to the Board for approval, an Emergency Response Plan in accordance with the Board's "Guidelines for Contingency Planning, January 1987", or subsequent edition.

2. The Licensee will maintain a copy of the Emergency Response Plan onsite in a readily available location, to the satisfaction of an Inspector.
3. The Licensee shall ensure that petroleum products, hazardous material and other wastes associated with the project do not enter any waters.
4. The Licensee shall ensure that all containment berms are constructed of an impermeable material, to the satisfaction of an Inspector.
5. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a) report the incident immediately via the 24 Hour Spill Report Line (867) 920-8130; and
 - b) submit to an Inspector a detailed report on each occurrence not later than thirty (30) days after initially reporting the event.

NORTHWEST TERRITORIES WATER BOARD


Witness


Chairman

APPENDIX A - SAMPLING AND ANALYTICAL REQUIREMENTS FOR CHARACTERIZATION OF SUMP SUPERNATANT FLUIDS

In the event that decanting a sump is required, the Licensee shall sample the sump using the following method:

Divide the sump into a grid of six equal areas, take three samples in the vertical profile (surface, mid-depth, just above the mud/supernatant interface) at the centre of each area. Mix these eighteen samples together to form a single composite sample, from which as many sub-samples may be obtained as necessary for analysis. An additional sample must be taken from the surface of the sump.

The Licensee shall have the composite sample analysed for the following parameters:

Total and Dissolved Metals	-	Copper
		Cadmium
		Iron
		Nickel
		Lead
		Zinc
		Chromium
Sulphate		
Conductivity		
pH		
Total Suspended Solids		
Chloride		
Sodium		
Potassium		
Calcium		
Magnesium		
Oil and Grease		
Toxicity (96 hour LC50 using rainbow trout)		

The surface sample should be analysed for oil and grease.

NORTHWEST TERRITORIES WATER BOARD

LICENSEE: Petro-Canada

LICENCE NUMBER: N7L1-1777

EFFECTIVE DATE OF LICENCE: December 1, 2001

EFFECTIVE DATE OF
SURVEILLANCE NETWORK PROGRAM: December 1, 2001

SURVEILLANCE NETWORK PROGRAM

A. Location of Sampling Stations

<u>Station Number</u>	<u>Description</u>
1777-1	Discharge from the Sewage Treatment Facilities
1777-2	Drilling Waste Prior to Entering the Drilling Sump

B. Sampling and Analysis Requirements

1. Water at Station Number 1777-1, shall be sampled every two weeks during decant, and analysed for the following parameters:

BOD ₅	Total Suspended Solids
Oil and Grease	Faecal Coliforms
Ammonia	pH

2. Waste Water at Station 1777-2, shall be sampled monthly, and analysed for the following parameter:

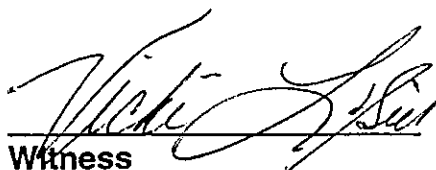
Total Sulphur	Total Calcium
Total Chloride	Total Sodium
Total Reactive Chlorine	

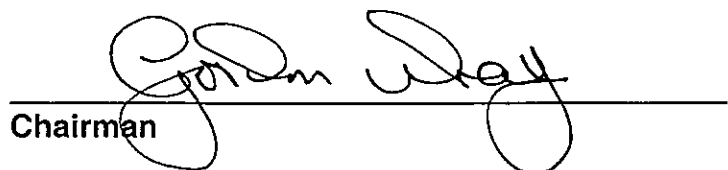
3. More frequent sample collection maybe required at the request of an Inspector.
4. All sampling, sample preservation, and analyses shall be conducted in accordance with methods prescribed in the current edition of "Standard Methods for the Examination of Water and Wastewater", or by such other methods approved by an Analyst.
5. All analysis shall be performed in a laboratory approved by an Analyst.
6. The Licensee shall, by January 31, 2002, submit to an Analyst for approval a Quality Assurance/Quality Control Plan.
7. The Plan referred to in Part B, Item 3 of the SNP shall be implemented as approved by an Analyst.

C. Reports

1. The Licensee shall, within thirty (30) days following the month being reported, submit to the Board all data and information required by the "Surveillance Network Program" including the results of the approved Quality Assurance Plan.

NORTHWEST TERRITORIES WATER BOARD


Witness


Chairman