
TITLE **GSA Application for a Type A Water Licence**
SECTION 2: Type A Water Licence Application
SUBJECT 1: Summary

APPLICATION SUMMARY

Applicant: Imperial Oil Resources Ventures Limited
Regulatory Agency: Mackenzie Valley Land and Water Board
Application Type: Type A Water License
Location: Gwich'in Settlement Area

Proposed Undertaking:	Description	Estimated Total Water Requirements
	<ul style="list-style-type: none"> • withdraw water from 36 potential water sources 	----
	<ul style="list-style-type: none"> • water use and deposit to: <ul style="list-style-type: none"> • develop and maintain about 141 km of temporary winter roads to access camps, borrow sites and the pipeline right-of-way during construction of the Mackenzie Gas Project 	114,600 m ³
	<ul style="list-style-type: none"> • develop and maintain about 186.3 km of right-of-way travel lane and temporary workspace 	372,000 m ³
	<ul style="list-style-type: none"> • water use and treated water deposits for: <ul style="list-style-type: none"> • consumption at the Campbell Lake infrastructure site 	79,800 m ³
	<ul style="list-style-type: none"> • consumption at the Inuvik area facility 	18,800 m ³
	<ul style="list-style-type: none"> • potential treated water deposits for pressure testing of pipelines and pressure vessels using water sourced from outside the GSA 	4,500 m ³
	Total Water Use Requirements	585,200 m ³
	Total Potential Water Deposits	589,700 m ³
	Total Operational Requirements	1,160 m ³

Overview Map: [Figure 2-1](#) is an overview map of activities in the GSA

Schedule: Following the receipt of all approvals and a decision to proceed, construction is scheduled to begin in mid-2006 with substantial completion scheduled for year-end 2009.

Other Related Applications:

Gwich'in Settlement Area – Type B water licence application including watercourse crossings, training, and diversions

Gwich'in Land Use Planning Board – amendment and exception

Inuvialuit Settlement Region – Type A and B water licences

Sahtu Settlement Area – Type A and B water licences

Deh Cho Region – Type A and B water licences

Figure 2.1 has been moved to reduce file size. To view it, click on the link to the figure in the web page List of Figures for this document.



Mackenzie Valley Land and Water Board
7th Floor - 4910 50th Avenue
P.O. Box 2130
YELLOWKNIFE NT X1A 2P6
Phone (867) 669-0506
FAX (867) 873-6610

APPLICATION FOR A NEW WATER LICENCE OR AMENDMENT OF EXISTING LICENCE

1. Name and Mailing Address of Applicant

Imperial Oil Resources Ventures Limited
237 Fourth Avenue S.W.
Calgary, Alberta T2P 3M9

Attn: A.D. (Sandy) Martin
Manager, Regulatory Affairs
Mackenzie Gas Project

Telephone number: (403) 237-2864
Fax number: (403) 237-2102
Email: sandy.d.martin@esso.ca

2. Address of Head Office in Canada if Incorporate

Mackenzie Gas Project
Imperial Oil Resources Ventures Limited
237 Fourth Avenue S.W.
Calgary, Alberta T2P 3M9

3. Location of Undertaking (describe and attach a map, indicating watercourses and location of any proposed waste deposits).

The Mackenzie Gas Project within the Gwich'in Settlement Area extends from the boundary with the Inuvialuit Settlement Region in the north to the boundary with the Sahtu Settlement Area in the south.

The location and other details regarding the proposed winter access roads, pipeline right-of-way travel lane construction (travel lane), pressure testing of the

pipelines, and site-specific water use requirements are covered in the site-specific sections in this application. See also Appendix C.

4. Description of Undertaking (describe and attach plans)

This Type A water licence application covers certain types of undertakings related to water use and deposits. The types of proposed undertakings are included in the industrial, municipal, and miscellaneous classifications in Schedule II of the *Northwest Territories Waters Regulations*.

The water use undertakings in this application meet or exceed the Type A licensing criteria in schedules IV, VI, and VII of the NWTWR. Wastewater deposit activities, which would ordinarily require a Type B water licence, are also included in this application.

The proposed water use and deposit requirements include:

- constructing and maintaining about 92.9 km of winter roads from 15 borrow sites to sites such as the Campbell Lake infrastructure site, the Inuvik area facility site, the pipeline right-of-way and other existing transportation corridors (see [Section 4](#))
- constructing and maintaining about 48.1 km of winter roads, including 37.1 km of access from 36 potential water sources and 11 km of direct pipeline construction access (shoofly) to the pipeline right-of-way and other existing transportation corridors (see [Section 4](#))
- constructing and maintaining about 0.1 km of pipeline right-of-way travel lane from the ISR border to the Inuvik area facility (see [Section 5](#))
- constructing and maintaining about 186.3 km of pipeline right-of-way travel lane and temporary workspace from the Inuvik area facility to the SSA border (see [Section 5](#))

Additional water use and treated water deposits include:

- water consumed at the Inuvik area facility and Campbell Lake infrastructure camps ([Section 7](#))
- deposits of treated wastewater from the camps ([Section 7](#))
- potential deposits of treated pressure test water sourced outside the GSA ([Section 6](#))

The locations and detailed descriptions of the proposed undertakings are included in each section.

Table 2-1 is a summary of the proposed use for each water source on Crown and private lands within the GSA. These sources are numbered from 48 to 103 and are shown on the site-specific maps in this application.

Table 2-1: GSA Water Source and Use Summary

Water Source No.	Kilometre Post (KP)	Water Source and Use			Total Annual Requirement (m ³)
		ROW	Access Roads		
			Borrow	Pipeline	
48	6.3	Yes	-	-	3,966
50	9.5	Yes	-	Shoofly	37
49	9.7	Yes	-	-	201
51	10.4	Yes	-	-	5,091
53	12.6	Yes	-	-	611
54 Campbell Lake	18.0	Yes	2.061P	Shoofly	42,316
58	35.4	Yes	-	-	5,719
GSA4	42.7	Yes	2.064BP	-	3,380
59	45.9	Yes	-	-	2,355
60	49.2	Yes	-	-	8,441
62 Hill Lake	57.9	Yes	-	-	505
63	64.2	Yes	4.026P	-	259
74 Fish Trap Lake	73.8	Yes	-	-	14,505
75 Wood Bridge Lake	79.5	Yes	4.023P	-	4,041
76	84.3	Yes	4.038APB	-	5,469
80A	91.8	Yes	-	-	3,537
80	94.7	Yes	4.020P 4.039P	-	5,778
83	103.3	Yes	4.038APB	-	6,498
86	111.9	Yes	-	-	161
85	112.9	Yes	-	-	2,771
87	116.7	Yes	-	-	4,340

Table 2-1: GSA Water Source and Use Summary (cont'd)

Water Source No.	Kilometre Post (KP)	Water Source and Use			Total Annual Requirement (m ³)
		ROW	Access Roads		
			Borrow	Pipeline	
GSA11	123.2	Yes	-	-	2,755
88	126.8	Yes	-	-	7,542
89	137.9	Yes	-	-	7,585
92	146.6	Yes	4.100P	-	76
93	148.9	Yes	-	-	5,357
94	152.0	Yes	4.103PB	-	46
95	151.5	Yes	-	-	365
96	161.7	Yes	-	-	9,696
98	166.2	Yes	5.013P	-	73
GSA16	166.2	Yes	-	-	1,058
100	169.8	Yes	-	-	16,347
101	175.7	Yes	5.020PA 5.020PB	-	335
Mackenzie River	177.1	Yes	-	-	13,827
102	180.4	Yes	-	-	88
103	186.2	Yes	-	-	216

5. Type of Undertaking.

- | | | | |
|-----------------------|---------------|------------------|---------------|
| 1. Industrial | <u> X </u> | 5. Agriculture | <u> </u> |
| 2. Mining and Milling | <u> </u> | 6. Conservation | <u> </u> |
| 3. Municipal | <u> X </u> | 7. Recreation | <u> </u> |
| 4. Power | <u> </u> | 8. Miscellaneous | <u> X </u> |

Industrial: Potential deposit of treated water for pressure testing the pipelines and pressure vessels in the GSA

Municipal: Water use and treated water deposits related to the Inuvik area facility and Campbell Lake infrastructure site

Miscellaneous: Winter road and travel lane construction

6. Water Use

To obtain water	<u> X </u>	Flood control	<u> </u>
To cross a watercourse	<u> </u>	To divert water	<u> </u>
To modify the bed or bank of a watercourse	<u> </u>	To alter the flow of, or store water	<u> </u>

Other (describe): Potential treated wastewater deposits

7. Quantity of water involved (litres per second, litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source).

Part 7 of each section in this application provides the quantity of water involved with each undertaking.

8. Waste deposited (quantity, quality, treatment and disposal)

Water deposits for winter access roads and the pipeline travel lane are described in Part 8 of [Section 4](#) and [Section 5](#). An overview of treated wastewater deposits is provided in [Section 3](#) and [Section 11](#).

9. Other persons or properties affected by this Undertaking (give name, mailing address and location). Attach a list if necessary.

A public involvement program, including aspects of the undertakings in this water licence application, has been conducted with local communities. For a summary of this program, see [Section 10](#).

10. Predicted environmental impacts of Undertaking and proposed mitigation.

Biophysical and human environment setting, effects and primary mitigation strategies are discussed on a regional basis in [Section 8](#). An overview of planned environmental protection plans is included in [Section 11](#).

11. Contractors and sub-contractors (names, addresses and functions). Attach a list if necessary.

The number of workers required for development activities at each site will depend upon the type, size and stage of each activity. An estimate of the personnel requirements for each aspect and the development is shown in Part 3 of the applications for land use permits on Crown and private land in the GSA.

12. Studies undertaken to date. Attach a list if necessary.

Detailed bathymetric surveys were conducted as part of the 2003 and 2004 field programs (Golder 2004). The surveys were intended to determine mean and maximum depths, and estimate summer and winter under-ice water volumes in potential water sources. This information will be used to determine the suitability of each lake as a potential water source, based on criteria established by Fisheries and Oceans Canada (DFO) in the *Draft DFO Protocol for Winter Water Withdrawal in the Northwest Territories* dated June 2004 (DFO Protocol).

The DFO Protocol is designed to protect fish and fish habitat and is based primarily on the following criteria:

- maximum water depth in the lake
- lake connectivity with other lakes
- maximum withdrawal of up to 5.0% of the under-ice volume

About 50 lakes along the proposed pipeline corridor in the GSA were included in the 2003 and 2004 bathymetric surveys (Golder, 2004). The lakes were initially identified based on their proximity to the location of planned use, available volumes from the source, source recharge capabilities and other related factors. Of the lakes surveyed, 14 were eliminated in response to community concerns and for technical reasons. Information on the potential requirements from each of the remaining water sources, including the Mackenzie River, is provided in [Table 2-1](#).

Water withdrawals from the majority of sources are not expected to exceed the 5.0% total volume criterion established by DFO. For lakes that do not exceed 5.0% criterion, no potential adverse environmental effects are expected.

For water source locations that require the withdrawal of water in excess of the 5.0% criterion, potential environmental effects and mitigation that might occur are shown in [Table 2-2](#).

Table 2-2: Potential Environmental and Mitigation Effects

Potential Effect	Primary Mitigation Strategy
Direct effects on fish habitat	Avoid spawning, rearing or overwintering habitats, unless authorized.
Direct effects on rare aquatic vegetation or riparian areas because of low snow pack	Avoid shoreline areas where these types of plants typically occur.
Loss of vegetation by access road construction	Reclaim sites according to regulations, policies, industry standards and best management practices.
Water withdrawals	Record the volume of the water withdrawal and ensure that volumes do not exceed regulatory limits stated in the water licence.

13. Proposed time schedule.

The anticipated duration of the proposed undertakings is included in the Schedule (Part 13) of the summary and site-specific sections in this application.

The term of the requested water licence is five years. This covers a three-year construction period and allows for subsequent demobilization, construction cleanup and reclamation activities.

Applicant

Name (print):

Imperial Oil Resources Ventures Limited
237 Fourth Avenue S.W.
Calgary, Alberta T2P 3M9

Attn: A.D. (Sandy) Martin
Manager, Regulatory Affairs
Mackenzie Gas Project

Signature: _____

Date: _____

FOR OFFICE USE ONLY

Please make all cheques payable to “Receiver General of Canada”

Application Fee Amount: \$30.00 Receipt No: _____

Water Use Deposit Amount: \$66.01 Receipt No: _____

