
TITLE **ISR 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: Northwest Territories Water Board
Application Type: Type A Water License
Location: Inuvialuit Settlement Region

Proposed Undertaking:	Description	Estimated Total Water Requirements
	<ul style="list-style-type: none"> • withdraw water from 34 potential water sources 	3,272,100m ³
	<ul style="list-style-type: none"> • water use and discharge to: <ul style="list-style-type: none"> • develop and maintain about 149.2 km of temporary winter roads to access camps, borrow sites and the pipeline right-of-way during construction of the Mackenzie Gas Project 	856,500 m ³
	<ul style="list-style-type: none"> • develop and maintain about 175.2 km of right-of-way travel lane and temporary workspace 	2,340,000 m ³
	<ul style="list-style-type: none"> • water use and treated water discharge for: <ul style="list-style-type: none"> • consumption at the Swimming Point infrastructure site 	56,000 m ³
	<ul style="list-style-type: none"> • consumption at the infrastructure of the Storm Hills pigging facility 	4,200 m ³
	<ul style="list-style-type: none"> • pressure test four gathering pipelines, totalling about 175.2 km in the ISR 	4,500 m ³
	<ul style="list-style-type: none"> • installation of HDD watercourse crossings in the ISR 	10,900 m ³
	Total water use and discharge requirements	3,272,100 m³

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

Schedule: Following the receipt of all approvals and a decision to proceed, water use for construction is scheduled to begin in mid-2006 with substantial completion scheduled for year-end 2009. Water use to support on going operations might be needed after 2009.

Other Related Applications: Inuvialuit Settlement Region – Type A water licence applications for anchor field activities from the three anchor field owners
Inuvialuit Settlement Region – Type B water licence application including watercourse crossings, training, and diversions

Inuvialuit Settlement Region – Class A land use permit application for activities related to the ISR Crown development

Inuvialuit Settlement Region – land use permit application for activities related to the ISR private development

Inuvialuit Settlement Region – Canadian Wildlife Service Permit – Bird Sanctuary Permit – Multi-Year application for activities related to the ISR KIBS development

Gwich'in Settlement Area – Type A and B water licences

Gwich'in Land Use Planning Board – amendment and exception

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.

Application for:

New Type A Water License



Amendment



1. Applicant's name and mailing address

Imperial Oil Resources Ventures Limited
P.O. Box 2480, Station M
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
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2. Head office address

Mackenzie Gas Project
Imperial Oil Resources Ventures Limited
425 First Street 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 ISR development extends from the three anchor fields in the northern part of the region to the boundary with the Gwich'in Settlement Area in the south. The ISR development excludes the anchor fields themselves.

The location and other details regarding the proposed winter access roads, gathering pipelines 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

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

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

The proposed water use and discharge requirements include:

- constructing and maintaining about 112.4 km of winter roads from 15 borrow sites to sites such as the Swimming Point infrastructure site, the Storm Hills pigging facility, the pipeline right-of-way and other existing transportation corridors (see [Section 4](#))
- constructing and maintaining about 36.8 km of winter roads, including 33.2 km of access from 34 potential water sources and 3.6 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 175.2 km of gathering pipeline right-of-way travel lanes and temporary workspace from the three production fields to the GSA border (see [Section 5](#))
- constructing eight HDD watercourse crossings along the Niglintgak and Taglu laterals

Additional water use and treated water discharges include:

- water consumed at the Storm Hills pigging facility and Swimming Point infrastructure camps ([Section 7](#))
- discharge of treated wastewater from the camps ([Section 7](#))
- potential sourcing and discharge of treated pressure test water ([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 ISR. It includes both the sources numbered from 2 to 46, and four sites on the Mackenzie River. The sources are shown on site-specific maps in this application.

Table 2-1: ISR Water Source and Use Summary

Water Source No.	Kilometre Post (KP)	Water Use							Total Required Annually (m ³)
		Infra-structure	Testing (m ³)	ROW	Access Roads				
					Infra-structure	Borrow	Pipeline	Facility	
Mackenzie River	N0.5	-	-	Yes	-	-	Shoofly	-	25,497
46B	N4.8	-	-	Yes	-	-	-	-	44,790
46C	N7	-	-	Yes	-	-	-	-	319
46F	T0.6	-	-	Yes	-	-	-	-	27,911
Mackenzie River, Harry Channel	T1.5	-	-	Yes	-	1.009Pa	-	-	42,489
2	T5.5	-	-	Yes	-	-	-	-	10,891
3	T7.7	-	-	Yes	-	-	-	-	15,992
4	T11.1	-	-	Yes	-	-	-	-	6,340
7	T16.8	-	-	Yes	-	-	-	-	45,398
9	T21.7	-	-	Yes	-	-	-	-	10,658
10	T23.4	-	-	Yes	-	1.002P	-	-	76,821
9BC	T23.4	-	-	Yes	-	1.009Pb 1.009Pc 1.005P 1.008P	-	-	68,360
Mackenzie River, East Channel	T39.0	Swimming Point infra-structure site	-	Yes	-	1.004Pa 1.004Pb 2.008PA 2.008PB	-	-	72,061
14	T45.4	-	-	Yes	-	-	-	-	2,875
15	T45.9	-	-	Yes	-	-	-	-	27,182
16	T47.9	-	-	Yes	-	-	-	-	2,342
18	T51.5	-	-	Yes	-	-	-	-	15,115

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

Water Source No.	Kilometre Post (KP)	Water Use							Total Required Annually (m ³)
		Infra-structure	Testing (m ³)	ROW	Access Roads				
					Infra-structure	Borrow	Pipeline	Facility	
15	T45.9	-	-	Yes	-	-	-	-	27,182
16	T47.9	-	-	Yes	-	-	-	-	2,342
18	T51.5	-	-	Yes	-	-	-	-	15,115
20	T55.7	-	-	Yes	-	-	-	-	22,090
22	T59.2	-	-	Yes	-	-	-	-	32,002
24	T65.6	-	-	Yes	-	2.022P 2.020P	-	-	22,972
25	T74.0	-	-	Yes	-	2.029P 2.029PB	-	-	15,290
10A	T80.2	-	-	Yes	-	-	-	-	426
10BC	T80.2	-	-	Yes	-	2.017P	-	-	86,895
33	S5.7	-	-	Yes	-	-	-	-	7,370
35	S17.8	-	-	Yes	-	-	-	-	102,367
38	S24.2	-	-	Yes	-	-	-	-	50,383
41	S34.4	-	-	Yes	-	-	-	-	43,882
43	S40.7	-	-	Yes	-	-	-	-	1,342
45	S42.8	-	-	Yes	-	-	-	-	48,297
31	P11.5	Storm Hills pigging facility	-	Yes	-	2.025P 2.028P	-	-	114,100
30	P22.2	-	-	Yes	-	-	-	-	7,540
29	P23.9	-	-	Yes	-	-	-	-	11,151
28	P24.4	-	-	Yes	-	-	-	-	9,516
Mackenzie River	0.0	-	4,500	Yes	-	-	-	-	N/A ^a
NOTE: ^a N/A – Not applicable									

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 discharge of treated water for pressure testing the gathering pipelines in the ISR

Municipal: Water use and treated water discharges related to the Storm Hills pigging facility and Swimming Point 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 pressure test water discharges

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. All water discharges will meet applicable regulations and standards.

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

Water discharges 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 discharges 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, potential effects and primary mitigation strategies are discussed on a regional basis in [Section 8](#). An overview of the 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 of the development is shown in the applications for land use permits on Crown and private land in the ISR.

12. Studies undertaken to date

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 64 lakes along the proposed pipeline corridors in the ISR 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 64 lakes surveyed, 30 were eliminated in response to community concerns or for technical reasons. Information on the potential requirements from each of the remaining 34 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 the 5.0% criterion, no potential adverse environmental effects are expected.

Authorization will be obtained for water source locations that require the withdrawal of water in excess of the 5.0% criterion.

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):

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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: \$329.66 Receipt No: _____