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TITLE	<b>Gwich'in Land Use Plan – Application for an Exception</b>
SECTION	1: Introduction
SUBJECT	1: Mackenzie Gas Project

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## INTRODUCTION

This application is for an exception (exception application) to the *Nành' Geenjit Gwitr'it Tigwaa'in, Working for the Land – The Gwich'in Land Use Plan* (Gwich'in land use plan or the plan) that took effect August 7, 2003. The exception is being sought for certain development activities in the Travaillant Lake, Mackenzie/Tree River Conservation Zone (conservation zone) and in the Transportation Special Management Zone – Dempster Highway: Mackenzie River to Inuvik (transportation zone). The proposed development activities are required to support construction of the Mackenzie Gas Project (the project), which is described below.

This application requests that the Gwich'in Land Use Planning Board (the Board) grant an exception under sections 41 (3) (d) and 44 (b) of the *Mackenzie Valley Resource Management Act* (MVRMA). This requested exception pertains to section 4.2.4 (c) of the Gwich'in land use plan in respect of the proposed activities in the conservation zone. It also pertains to a visibility condition in the plan that might apply to certain developments along the Dempster Highway.

## PURPOSE

The purpose of the project is to develop three onshore natural gas fields (anchor fields) in the Mackenzie Delta and to transport natural gas and NGLs by pipeline to market. It has also been designed to accommodate gas and NGLs from other sources in the Mackenzie Delta and Mackenzie Valley.

The project will involve:

- constructing and operating wells and natural gas field development facilities at Niglintgak, Taglu, and Parsons Lake, including:
  - well pads
  - flow lines
  - gas conditioning facilities
- developing infrastructure to support construction and operations activities, including:
  - barge landing sites
  - camps
  - stockpile sites
  - fuel storage sites

- access roads
- airstrips and helicopter landing areas
- borrow sites
- water sources for camps and construction purposes
- constructing and operating a gas processing and NGL separation facility near Inuvik (the Inuvik area facility)
- constructing and operating pipelines and associated pipeline facilities, including compressor stations, a heater station, valving, metering, pigging, and cathodic protection facilities
- connecting with the Enbridge Pipelines (NW) Inc. pipeline near Norman Wells at an interconnection facility to be built by Enbridge under separate regulatory authorization
- connecting with an extension of the NOVA Gas Transmission Ltd. (NGTL) system at an interconnection facility to be built by NGTL in Alberta, under separate regulatory authorizations
- operating and maintaining the pipelines, related pipeline facilities, and infrastructure while there is economic gas production available
- decommissioning and abandoning project components at the end of their operating lives

Figure 1-1 shows the project components in the production area. Figure 1-2 shows the project components along the NGL and gas pipeline corridor. These components are summarized in the table at the end of this section and in the foldout maps in Appendix E.

## PROJECT PHASES

### Project Definition

Project definition began in January 2002 and, is expected to conclude in 2006. Activities include:

- consulting with the public, which will continue during the project life
- completing conceptual and preliminary engineering design
- conducting biophysical and human environment studies and assessments
- developing access agreements and benefits plans
- developing and submitting applications for approval by regulatory agencies
- participating in the regulatory review process

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Figure 1.2 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.

The conclusion of the project definition phase will be marked by a decision as to whether to proceed with construction. This decision will be based on factors such as:

- the terms and conditions of regulatory approvals
- estimated project costs
- the outlook for natural gas markets

## **Design and Construction**

Detailed design and construction are expected to take about three years and are scheduled to begin in 2006 and be substantially complete in 2009, with cleanup, demobilization and reclamation continuing through 2010. Activities include:

- continuing public consultation
- completing detailed engineering design
- purchasing goods and services
- developing and constructing infrastructure sites such as borrow sites
- drilling wells at the anchor fields
- constructing production facilities and flowlines at the anchor fields
- constructing the pipelines and associated pipeline facilities
- commissioning and starting up the facilities
- completing construction clean-up and reclamation

During this phase, the project will have the most interaction with the surrounding natural environment and communities. Areas disturbed during construction that will not be used during operations will be reclaimed shortly after construction.

## **Operations**

Operations are expected to begin in 2009. By then, project interaction with the surrounding natural environment and community will have decreased. In addition to community consultation, which will continue in the operations phase, activities include:

- processing raw natural gas and transporting natural gas and NGLs to market by pipeline
- operating and maintaining anchor fields, pipelines and facilities
- undertaking post-construction monitoring and associated remediation
- maintaining production levels by completing additional drilling and installation of compression facilities at Parsons Lake and Taglu

Operations are expected to continue while there is economic gas production in the region.

Developing other natural gas fields in the Mackenzie Delta and Mackenzie Valley might extend the life of the project.

### **Future Expansion**

Options to expand the gathering pipeline capacity include looping parts of laterals, installing new laterals to the Inuvik area facility or constructing additional facilities.

Installing intermediate compressor stations would expand the capacity of the gas pipeline. At full expansion, 10 additional stations would be required. The average spacing between these stations would be about 80 km.

Installing intermediate pump stations would expand the capacity of the NGL pipeline. At full expansion of the gas pipeline, two intermediate pump stations would be required to meet corresponding NGL flow rates. These pump stations would be located on the same sites as future compressor stations.

Future expansions will be the subject of subsequent applications.

### **Decommissioning and Abandonment**

Decommissioning and abandonment will begin after the facilities are not required for construction or operation of the project.

Decommissioning and abandonment activities will be completed according to the regulatory requirements at the time. Surface facilities and infrastructure might be removed and surfaces, other than granular pads, reclaimed. Alternative uses for the sites being abandoned and reclaimed will be considered.

## **PROJECT SCHEDULE**

Once regulatory approvals have been received, the decision as to whether to proceed with construction can be made. The proposed construction activities could begin in 2006 and be substantially complete in 2009, with construction clean-up, demobilization and reclamation continuing through 2010.

The preliminary construction plan divides pipeline construction into five construction spreads for each year of construction. These spreads vary in length and are summarized in [Table 1-1](#).

**Table 1-1: Location and Length of Pipeline Construction Spreads**

Construction Spread	Year of Construction	Segment From	Segment To	Length (km)	Nominal Pipe Size
E	1	Niglintgak	Taglu	16	16
	1	Taglu	Storm Hills pigging facility	81	26
	1	Parsons Lake	Storm Hills pigging facility	27	18
	2	Storm Hills pigging facility	Inuvik area facility	52	30
	2	Inuvik area facility	Crossing Creek Lake	95 (two pipelines)	30, 10
D	1	Crossing Creek Lake	Little Chicago	106 (two pipelines)	30, 10
	2	Little Chicago	Fort Good Hope	124 (two pipelines)	30, 10
C	1	Fort Good Hope	Norman Wells	147 (two pipelines)	30, 10
	2	Norman Wells	Little Smith Creek	147	30
B	1	Little Smith Creek	Ochre River	137	30
	2	Ochre River	Camsell Bend	150	30
A	1	Camsell Bend	McGill Station	157	30
	2	McGill Station	NGTL interconnect facility	157	30

Reclamation and mitigation measures implemented during construction will be monitored for a specific period after construction, or as specified by regulatory approval conditions. Long-term monitoring programs will be established, as required, for areas with environmental, geotechnical, and pipe integrity issues.

## PROJECT COMPONENTS

The proposed pipeline corridor, including the gathering and transmission pipelines, is about 1,396 km long. It extends through the Inuvialuit Settlement Region (ISR), the GSA, the Sahtu Settlement Area (SSA) and the Deh Cho

Region (DCR) and crosses the boundary between the Northwest Territories and Alberta.

Table 1-2 provides a list of the major project components. A percentage for each of these components, in each region, is also provided in the table.

**Table 1-2: Major Project Components**

<b>Project Component<sup>a</sup></b>	<b>Total Project Requirements<sup>b</sup></b>	<b>ISR (%)</b>	<b>GSA (%)</b>	<b>SSA (%)</b>	<b>DCR (%)</b>
Pipeline right-of-way length	1,396 km	13	13	37	37
Pipeline land requirements (permanent)	6,020 ha	11	15	39	35
Facility land requirements (permanent)	96 ha	4	50	22	24
Temporary land requirements	9,810 ha	12	11	48	29
Watercourse crossings	666	18	19	39	24
Water requirements	7,000,000 m <sup>3</sup>	47	8	23	22
Barge Landing sites (new and upgraded)	11	9	0	45	46
Construction camps (new and upgraded)	18	11	11	34	44
Stockpile sites (new and upgraded)	23	13	9	35	43
Fuel storage sites (new and upgraded)	21	10	10	38	42
Project access roads	972 km <sup>2</sup>	15	17	41	27
Airstrips (new and upgraded)	6	17	0	33	50
Borrow pits and rock quarries (existing and new)	127	12	12	43	33
NOTES: <sup>a</sup> Numbers in this table include developments within municipal boundaries and on Commissioner's lands. <sup>b</sup> In addition to the requirements shown on this table, about 15 m, or 0.06 ha, of pipeline right-of-way will be required by Imperial in Alberta.					

**Gwich'in Land Use Planning Board**  
**P.O. Box 2478, Inuvik, NT X0E 0T0**

**Application for an Exception to the Gwich'in Land Use Plan**

Receipt Date (dd/mm/yy)	Application Date (dd/mm/yy)

**Name of Applicant**

Imperial Oil Resources Ventures Limited

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

**Mailing Address**

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**Summary of Exception Request (please tell us why you are requesting an exception)**

This is an application for an exception to certain conditions in the *Nành' Geenjit Gwitr'it Tigwaa'in, Working for the Land – Gwich'in Land Use Plan* that took effect on August 7, 2003. It is being submitted by Imperial Oil Resources Ventures Limited (Imperial) to the Gwich'in Land Use Planning Board pursuant to Sections 41 (3) (d) and 44 (b) of the *Mackenzie Valley Resource Management Act*.

The Mackenzie Gas Project includes the development of a pipeline corridor through the Travaillant Lake, Mackenzie/Tree River Conservation Zone and the Transportation

Special Management Zone – Dempster Highway: Mackenzie River to Inuvik. The conservation zone is located on Gwich'in private land. The transportation zone is located on Crown and Gwich'in private land.

Imperial requests that the Board grant an exception to the Gwich'in land use plan to:

- permit the use of water sources and the construction of temporary winter access roads in the conservation zone (Water will be required to supplement snow cover on roads to create appropriate ice thickness to protect ground surfaces from damage.)
- address the visibility expected to result from the development of a temporary infrastructure site in the transportation zone (This infrastructure site is a 1,350-person construction camp with an equipment, material, and line pipe stockpile, and a fuel storage area that will be installed at a site about 3.0 km north of Campbell Lake, known as the Campbell Lake infrastructure site.)
- address the potential visibility of borrow sites 2.061P and 20.073P in the transportation zone (A borrow site is an area that might be excavated to provide granular material for use in the construction of the project and include sand and gravel pits and rock quarries).

These exceptions relate to developments associated with construction of the project.

Overview maps are shown in [Figure 2-1](#) and [Figure 2-2](#). The symbology on the overview map legends includes Gwich'in private settlement land but not Crown land.

### **Travaillant Lake, Mackenzie/Tree River Conservation Zone**

The Gwich'in land use plan recognizes that a pipeline corridor through a Gwich'in conservation zone is a permitted use, provided that the related development activities comply with the criteria identified in Section 4.2.4 (a) through (d).

The development complies with the spirit and intent of items (a), (b), and (d) of Section 4.2.4 in the following ways:

- the proposed route was selected over other feasible routing alternatives and represents the shortest practical distance through the conservation zone, taking into account community concerns and pipeline design and operating considerations
- the proposed route avoids the most sensitive ecological and cultural areas wherever possible and strives to achieve a limited level of disturbance through effectively applied mitigation measures
- efforts have been made to have meaningful consultation with Gwich'in communities and affected parties regarding the pipeline corridor and pipeline construction, operation and abandonment

In addition, the development complies in part with Section 4.2.4 (c), which states that:

“a pipeline corridor through a Gwich’in conservation zone is permitted if it:  
... uses the best available technology to minimize environmental impacts and proposes no additional developments....within the conservation zone.”

Existing and proven equipment and methodologies will be used during construction and reclamation activities to limit the environmental impacts of the proposed development activities in the conservation zone.

These activities include developing 3.4 km temporary winter access roads to five potential water sources in the conservation zone, as well as withdrawing and using water for construction purposes. The water sources were identified, in large part, because of their proximity to the pipeline right-of-way. This will reduce water haul distances and effects on the environment.

Based upon the foregoing, Imperial requests that the Board exercise its authority under Section 44 (b) of the MVRMA to grant an exception to Section 4.2.4 (c) of the Gwich’in land use plan.

#### **Transportation Special Management Zone – Dempster Highway: Mackenzie River to Inuvik**

Imperial proposes to develop one infrastructure site near Campbell Lake, and borrow sites 2.061P and 20.073P near the Dempster Highway. The Gwich’in land use plan imposes a condition to protect tourism values (Condition 1) on all new development activities within a 2.0 km buffer along the Dempster Highway (buffer zone).

The Campbell Lake infrastructure site will be connected to the Dempster Highway by an all-weather road and will be visible from the Dempster Highway at all times through the construction period. The site was chosen for logistical and topographic reasons. It will be set back from the Dempster Highway and partially screened by a treed buffer. External lighting will be controlled but sufficient for safety and maintenance.

Borrow site 2.061P is located about 750 m east of the Dempster Highway. Spruce trees might partially block the view and measures will be taken to reduce the visibility of the site, to the extent practical. For example, the visual effects of light can be partially reduced by proper placement and use only where required. Even with such measures, the site might still be seen from the Dempster Highway during borrow site operations because of the presence of lighting and operating equipment.

Borrow site 20.073P is located about one kilometre east of the Dempster Highway. Measures will be taken to reduce the visibility of the site, to the extent practical. However, the site might still be seen from the Dempster Highway at certain times during operations, as explained for borrow site 2.061P.

Based on the foregoing, Imperial requests that the Board exercise its authority under section 44 (b) of the MVRMA to grant an exception, as set out in the Gwich’in land use plan, with respect to the Campbell Lake infrastructure site and borrow sites 2.061P and 20.073P from the limitation on visibility in Condition 1.

## Related Applications

In addition to this exception application, an application has been submitted separately to the Board pursuant to Section 48 (1) of the MVRMA for an amendment of the Gwich'in land use plan (amendment application). The amendment application is required to permit the potential development of a proposed borrow site 4.059AP in the conservation zone.

Other applications that have been submitted concurrently with this exception application:

- Type A land use permit for Crown land
- Type A land use permit for private land
- Type A water licence application for certain Type A and Type B water use and treated wastewater deposit undertakings

**In which land use zone, or zones, will the activity take place:**

- Conservation Zone**
- Special Management Zone**

**Project Construction Period:**

The proposed activities are anticipated to begin in the summer of 2006. Access to these sites will be required for the duration of construction and, potentially, during reclamation activities.

**Please include with your application:**

- Summary of the Operation**  
See [Appendix A](#)
- Location of the Activities**  
See [Appendix B](#)
- Environmental and Resource Effects**  
See [Appendix C](#)
- Public Involvement**  
See [Appendix D](#)

A foldout map of the project is provided in [Appendix E](#).

**Do you have support from the affected communities? (provide letters, if possible)**

Consultation has been underway since 2001 through public meetings, meetings with individuals, and regarding traditional knowledge. Accommodations of community concerns have been sought and made. Community support is being sought and is expected before the commencement of construction in 2006. For additional information on consultation activities, see Appendix D.

**Ehdiitat Gwich'in Council**

**Nihtat Gwich'in Council**

**Tetlit Gwich'in Council**

**Gwichya Gwich'in Council**

**Do you have Tribal Council and Government support? (provide letters, if possible)**

Consultation is ongoing with the expectation that Tribal Council and Government support will be obtained before the commencement of construction in 2006. For additional information on consultation activities, see [Appendix D](#).

**Gwich'in Tribal Council**

**Government of Northwest Territories**

**Government of Canada**

**Applicant**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Signature**

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Figure 2.2 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.



## INTRODUCTION

The purpose of the project is to develop three anchor fields in the Mackenzie Delta and to transport natural gas and natural gas liquids (NGLs) by pipeline to market. It has also been designed to accommodate gas and NGLs from other sources in the Mackenzie Delta and Mackenzie Valley.

The project will include the development of a new pipeline corridor in the GSA extending about 187.2 km from the Inuvialuit Settlement Region to the Sahtu Settlement Area boundary. About 24.7 km of the pipeline corridor will cross through the Travaillant Lake, Mackenzie/Tree River Conservation Zone.

This application is for an exception to the Gwich'in land use plan to allow:

- development of about 3.4 km of winter access roads to five water sources for use in the construction of access and work surfaces relating to the project
- withdrawal and use of water from five water sources for use in the construction of access roads and work surfaces relating to the project
- development of an infrastructure site near Campbell Lake in view of the Dempster Highway
- development of two borrow sites (2.061P and 20.073P) in potential view of the Dempster Highway

The activities described in this application are within the conservation and transportation zones. The conservation zone is located on Gwich'in private settlement land. The transportation zone includes both private and Crown land. Borrow sites 2.061P and 20.073P are located on Crown land.

## WATER SOURCES

Water will be used in addition to natural snowfall to protect the ground surface from damage caused by construction vehicles in the conservation zone. Water from the identified water sources might also be used to supplement winter roads and to ensure that trucks and equipment have a level and smooth surface upon which to operate.

The construction of a travel lane in the pipeline right-of-way and the associated work areas within the conservation zone is expected to require the use of water, in conjunction with natural snowfall to provide a travel surface during each

construction season. The travel lane will be about 17 m wide, sufficient to allow for the movement of construction equipment, materials and passenger vehicles safely on the pipeline right-of-way.

There are five water sources listed in [Table B-1](#) that might be needed to provide water for constructing and maintaining winter access roads and work surfaces within the conservation zone. The following figures show the proximity of these water sources to the proposed pipeline right-of-way, which will reduce the haul lengths required by water trucks and subsequently reduce the effects on the surrounding area:

- [Figure B-1: Gwich'in Land Use Plan Exception Application – KP-82 to KP-91](#)
- [Figure B-2: Gwich'in Land Use Plan Exception Application – KP-91 to KP-99](#)
- [Figure B-3: Gwich'in Land Use Plan Exception Application – KP-99 to KP-112](#)
- [Figure B-4: Gwich'in Land Use Plan Exception Application – KP-110 to KP-121](#)
- [Figure B-5: Gwich'in Land Use Plan Exception Application – KP-120 to KP-130](#)

The current estimate for water requirements along the pipeline right-of-way travel lane between KP-98.0 and KP-122.7 is about 10,000 m<sup>3</sup>. At an average volume of about 25 m<sup>3</sup> per truckload, about 400 truckloads of water will be required. If the water is acquired from alternative water sources outside of the conservation zone, the trucks will have to travel an extra 30 km on average per round-trip. Therefore, the total additional distance would be about 12,000 truck-km.

To keep up with construction demand and to cover the additional distances associated with the alternative sites, more trucks would be in transit during the construction period. The resulting increased traffic activity could adversely affect the condition of the right-of-way through the conservation zone. Increased traffic also presents the potential for incremental safety concerns and a greater risk of collisions with wildlife.

To obtain water from the proposed water sources within the conservation zone, the construction of 3.4 km of winter access roads will be required. The width of the access roads will be approximately six metres, within a 20 m wide road allowance, to accommodate the water trucks. Where possible, winter access roads will traverse existing lakes or waterbodies to reduce the potential effects on the land. The current annual estimate for water volumes to construct these access roads, joining the right-of-way between KP-95.2 and KP-123.3, is about 600 m<sup>3</sup>.

The water sources will be accessed from the proposed pipeline right-of-way using the winter roads listed in [Table B-2](#).

Bathymetric surveys, field studies and available information will be used to confirm that water removal from the proposed water sources will not have a negative effect on the water levels or the fish populations within each lake. The Department of Fisheries and Oceans Canada (DFO ) *Draft Protocol for Water Withdrawal for Oil and Gas Activities in the Northwest Territories*, dated June 2004, or as otherwise authorized, will be used as a basis for verifying the acceptability of the water sources. At the end of the winter season, during the spring melt, the water used for winter road construction will re-enter the surrounding natural drainage system.

Not all of the water sources listed in this exception application might be required. Continuing evaluation could result in some of the water sources not being required. In addition, the need for water to supplement snow cover on travel surfaces is dependent upon conditions at each location in each construction year.

The developments requested in this exception application will increase the potential for access into the conservation zone, which could increase recreational and subsistence harvesting opportunities in the short term. Long-term effects, after mitigation and reclamation, are not expected. The small footprint, totalling about 14.6 ha for the access roads, and the short-term nature of water withdrawal activities should have limited effects on traditional land use activities occurring in the area. If these access roads and water sources were not developed, truck traffic would increase elsewhere in the region.

## **CAMPBELL LAKE INFRASTRUCTURE SITE**

A temporary infrastructure site will be required to house construction workers and stockpile the materials and fuel required to build the project. The proposed Campbell Lake infrastructure site is situated in the transportation zone. The Campbell Lake infrastructure site will be visible from the Dempster Highway and, as a result, an exception to the tourism condition pertaining to the transportation zone is required.

The camp will be designed to accommodate 1,350 people and will consist of modular units arranged in a conventional construction field camp configuration, with a footprint of about 7.4 ha. Sleeper, lavatory, shower, kitchen and dining units, recreational facilities, and first aid stations will be included as part of the camp. Units supporting offices, maintenance shops, bulk storage, electricity generator sets and water treatment equipment will also be part of the camp.

A stockpile area will be developed within the footprint of the Campbell Lake site to store pipe, materials and equipment after they have been off-loaded in Inuvik and before they are needed for construction purposes. This site could also be used

to store construction equipment when it is not being used. The stockpile site is expected to be about 7.0 ha in area.

A fuel storage site will also be developed at the Campbell Lake infrastructure site. The primary fuel for camp, construction equipment and light-duty trucks will be diesel. The volume of fuel to be stored at the Campbell Lake site will be about 1.1 million L.

The Campbell Lake infrastructure site was selected primarily for the following reasons:

- Most materials will be delivered by barge to Inuvik during the summer barge season before being trucked to a storage site until the following winter construction season.
- The site is well situated to serve the storage requirements of both the Inuvik area facility and a pipeline construction spread that spans the distance between a point lying about 50 km north of the Inuvik area facility and Crossing Creek Lake (E2), about 90 km to the southeast of the Campbell Lake infrastructure site.

The topographic conditions in the general area of the Campbell Lake infrastructure site are such that locations outside of the two-kilometre buffer that meet the logistical requirements above, would require significantly more fill material to build up a stable pad for the camp modules and stockpile activities.

There will be a high level of activity at the Campbell Lake infrastructure site during the construction period. A part of this activity will be truck traffic along the Dempster Highway. In recognition of this activity, when balanced with the logistical and topographic rationale listed above, the site will be set back about 100 m from the Dempster Highway. This will provide a treed buffer, reducing direct sight lines between the Dempster Highway and the Campbell Lake infrastructure site.

High-pressure sodium lights will be used for building and external yard lighting. External lighting will be controlled, while providing enough light for safety and maintenance purposes.

## **BORROW SITES**

### **Borrow Site 2.061P**

This source contains an existing pit and will be developed for the extraction of general fill, primarily sand and gravel. Expected activities include clearing, ripping, drilling and possibly blasting in order to extract the required material.

The area of potential development for borrow site 2.061P is about 9.1 ha and is located about a kilometre east of the Dempster Highway, in the transportation zone. The borrow site will be visible from the Dempster Highway at certain times during the year.

This site is optimally situated to supply a part of the granular material requirements of the infrastructure pad at the Campbell Lake infrastructure site, located about 9.0 km to the north. It might also be used for the pipeline construction spread that spans the distance between a point lying about 50 km north of the Inuvik area facility and Crossing Creek Lake (E2), about 90 km to the southeast of the Campbell Lake infrastructure site.

No other suitable sources of this type of borrow material in locations that are outside of the two-kilometre buffer, and meet the logistical requirements of proximity from source to place of use, have been identified.

There will be a high level of activity at the borrow site during extraction operations. A part of this activity will be truck traffic along the Dempster Highway. The site will be set back about 1,000 m from the Dempster Highway. This will provide a treed buffer, limiting direct sightlines between the Dempster Highway and the site.

External lighting will be controlled, while providing enough light for safety and maintenance purposes.

### **Borrow Site 20.073P**

This source contains an abandoned quarry and will be developed for the extraction of limestone material. Expected activities include clearing, ripping, drilling and possibly blasting in order to extract the required materials.

The area of potential development for borrow site 20.073 is about 40.5 ha and is located about one kilometre east of the Dempster Highway, in the transportation zone. The borrow site might be visible from the Dempster Highway, and as a result, an exception to a tourism condition in the Gwich'in land use plan is being sought.

This borrow site is well situated to supply a part of the granular material requirements of the infrastructure pad at the Campbell Lake infrastructure site, located about 17 km to the north. It might also be used for the pipeline construction spread that spans the distance between a point lying about 50 km north of the Inuvik area facility and Crossing Creek Lake (E2), about 90 km to the southeast of the Campbell Lake infrastructure site.

No other suitable sources of this type of borrow material in locations that are outside of the two-kilometre buffer, and that meet the logistical requirements of proximity from source to place of use, have been identified.

There will be a high level of activity at the borrow site during extraction operations. A part of this activity will be truck traffic along the Dempster Highway. The site will be set back about 500 m from the Dempster Highway. This will provide a treed buffer, limiting direct sightlines between the Dempster Highway and the site.

External lighting will be controlled, while providing enough light for safety and maintenance purposes.

## LOCATION OF WATER SOURCES

Five potential water sources have been identified in the conservation zone primarily due to their proximity to the pipeline right-of-way. Their map coordinates are provided in [Table B-1](#) and the locations of project sites are also shown in [Figure B-1](#), [Figure B-2](#), [Figure B-3](#), [Figure B-4](#) and [Figure B-5](#).

**Table B-1: Map Coordinates of Water Source Centroids**

Water Source No.	Latitude (DD)	Longitude (DD)	Easting (m)	Northing (m)	UTM Zone
83	67.8073	-131.6595	387924	7523793	9
86	67.7483	-131.6022	390063	7517119	9
85	67.7536	-131.5787	391080	7517661	9
87	67.7278	-131.5320	392934	7514711	9
GSA11	67.6526	-131.5176	393201	7506298	9

The six winter access roads that will be used to transport water from the potential water sources to the pipeline right-of-way are listed in [Table B-2](#).

**Table B-2: Water Source Access Roads**

Access Road Name	Kilometre Post (KP)	Land Use	Estimated Length (km)
		Private Length (km)	
G-WS-W-83a	103.3	0.4	0.4
G-WS-W-83b	106.3	0.5	0.5
G-WS-W-86	111.6	0.3	0.3
G-WS-W-85	111.8	0.5	0.5
G-WS-W-87	116.7	0.1	0.1
G-WS-W-GSA11	123.3	1.6	1.6
Total length of pipeline access roads on conservation zone lands:			3.4 km

## LOCATION OF THE INFRASTRUCTURE AND BORROW SITES

The map coordinates are provided in [Table B-3](#) and the locations of project sites are shown in [Figure B-6](#), [Figure B-7](#) and [Figure B-8](#).

**Table B-3: Map Coordinates of Infrastructure and Borrow Sites**

Site	Latitude (DD)	Longitude (DD)	Easting (m)	Northing (m)	UTM Zone
Campbell Lake Site	68.3115	-133.3238	569122	7578535	8
Borrow Site 2.061P	68.2490	-133.2545	572177	7571645	8
Borrow Site 20.073P	68.2008	-133.4112	565839	7566103	8

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Figure B.4 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.

Figure B.5 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.

Figure B.6 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.

Figure B.7 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.

Figure B.8 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.

## **INTRODUCTION**

The following subject provides specific biophysical and human environment setting, effects and mitigation information associated with developing the proposed water sources and winter access roads in the conservation zone and the Campbell Lake infrastructure site and borrow sites 2.061P and 20.073P in the transportation zone.

## **CONSERVATION ZONE SITES**

### **Biophysical Setting**

#### **Air Quality**

The air quality setting for borrow site 2.061P is expected to be similar to the regional setting for the GSA.

Air quality information for the GSA indicates that ambient levels of sulphur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>) are below existing ambient guidelines. Carbon monoxide (CO) in the environment typically results from partial or incomplete combustion. Given the present limited presence of vehicles near the development area, background CO levels and background PM<sub>2.5</sub> levels, fine particulate matter with a diameter of less than 2.5 micrometres (µm), are assumed to be near zero (CCME 2000; Environment Canada 1981; RWED 2002).

#### **Noise**

The noise setting for borrow site 2.061P is expected to be similar to regional setting information for the GSA. The acoustic environments of these sites are dominated by the sounds of nature, such as wind rustling through foliage and animal noises.

#### **Soils, Landforms and Permafrost**

The area within the conservation zone consists largely of hummocky glaciofluvial outwash that is rapidly drained and has gentle slopes up to 10%. The area is underlain by soils of the Brunisolic and Cryosolic Orders.

#### **Vegetation**

Vegetation consists of mature open canopy spruce and tall shrubs, with some wet areas and patterned ground. Information from similar areas in the region suggests

white spruce dominates the canopy of the forested area. Shrub species under the spruce canopy typically include white spruce, willow, bog birch and black spruce. Cloudberry and grasses generally characterize the herbaceous layer. The forest floor supports mosses and lichens.

Areas of tall shrubs are typically composed of willow species with herbaceous vegetation consisting of cloudberry and sweet coltsfoot. Reindeer lichens, peat moss and golden moss are also common.

### **Wildlife**

Evidence of moose, caribou, snowshoe hare, loons and an American robin were recorded during field surveys. Even though grizzly bears were not identified during the surveys, they are common to the area. The area around the potential development is characterized as low to moderate habitat for moose and caribou. Several unnamed ponds and lakes provide habitat for muskrats, beaver and water birds.

### **Hydrology**

Numerous unnamed ponds and lakes are also located in the area. These waterbodies are connected by the numerous watercourses.

Most watercourses in the region are tributary watercourses draining muskeg terrain. They have vegetation-covered upper banks with silt and peat in the lower banks. The watercourse bed might be sand or fine sand and silt. In other instances, gravel is found on the bed, usually representing materials washed out of the watercourse banks or moved down by tributary watercourses, and now mainly stabilized in the channel. Many of the muskeg watercourses drain watersheds where little erosion occurs under natural conditions, and the major part of the debris load carried by the watercourses is organic. Willow, alder and ground vegetation grow close to areas that are frequently flooded, while spruce and birch are found higher up. Dense vegetation exists in many flood plains, but is subject to frequent forest fires.

### **Groundwater**

The conservation zone is situated mainly in an area of continuous permafrost in the north and an area of discontinuous permafrost in the south. Groundwater in this area is linked to surface flow that, in turn, responds to short- and long-term variations in precipitation or snowmelt.

The prevalence and depth of permafrost plays a role in the distribution of groundwater. In areas of continuous permafrost (over 90% of exposed land area underlain by permafrost) (Heginbottom 2000), groundwater flow is limited. Groundwater lying beneath the permafrost layer has little interaction with surface flows.

During field reconnaissance surveys conducted in 2002, 2003 and 2004, there was no evidence of perennial springs or groundwater inflow near the pipeline corridor in the GSA. Seasonal springs and seepages do occur at thaw-flow slides and along the base of the active layer overlying the permafrost. These flows are generally fed by frost and ice melt-out from the active layer and by melting of exposed permafrost.

Bubbling open water in winter was reported near the middle of Travaillant Lake. This might result from subpermafrost groundwater welling up through a talik beneath the lake. Some of the other deeper lakes in this area could have similar inflow of subpermafrost groundwater.

During the 2003 hydrogeological field surveys, all lakes along the proposed pipeline route were found to have very low banks and no slides of any type were noted. A few areas of soil creep related movement of shallow groundwater within the active layer were discovered.

### **Water Quality**

Water quality data representative of the Travaillant River are likely similar to Travaillant Lake. The lakes in this area are connected to drainages associated with Travaillant Lake.

Surface water pH values in the area were within the aquatic life and drinking water guidelines (CCME 1999; Health Canada 2003). In the winter of 2002, low dissolved oxygen concentrations, e.g. 0.6 mg/L were observed in the east tributary of Travaillant River. These values were below the minimum aquatic life guideline values.

Water was moderately coloured, and turbidity and total suspended solids (TSS) levels were low in waterbodies sampled in the summers of 2002 and 2003. Colour values were above the drinking water guideline.

Hardness levels indicated soft water in Travaillant River and TSS and laboratory-measured conductance values were low.

Total phosphorus concentrations were indicative of oligotrophic conditions, i.e., nutrient poor, in Travaillant River. Total aluminum and iron concentrations were above the aquatic life and drinking water guidelines in the Travaillant River. Total chromium levels were also above the aquatic life guideline in the Travaillant River. These metals are typically associated with suspended solids within the water column and are not available for uptake by aquatic life or humans.

Bottom sediment from Travaillant River in 2002 was mostly sand.

Total arsenic and C<sub>1</sub>-substituted naphthalene levels were higher than the interim sediment quality guidelines in all waterbodies.

## **Fish and Fish Habitat**

The lakes in this area are connected to drainages associated with Travaillant Lake. Travaillant Lake and other connected waterbodies support an assortment of fish including Arctic grayling, broad whitefish, inconnu, lake chub, lake trout, lake whitefish, least cisco, longnose sucker, northern pike, ninespine stickleback, walleye, pond smelt, trout perch and sculpin species.

The lakes in the area are shallow, with soft bottoms, and support extensive littoral cover consisting of emergent and submergent vegetation and floating pondweeds. They could provide spawning and rearing habitat for northern pike but are unlikely to provide overwintering habitat, because they freeze to the bottom in the winter.

## **Biophysical Effects**

Information presented in the Gwich'in land use plan indicates that Travaillant Lake and other waterbodies located within the conservation zone are sensitive due to their cultural significance and existing fish populations.

Water withdrawal from the potential sources identified by the project fall into the following three categories:

- water sources where amounts withdrawn do not exceed the 5.0% total volume criteria established by DFO
- water sources where amounts withdrawn exceed the 5.0% total volume criteria established by DFO
- water sources which are not connected to other waterbodies and where the maximum ice thickness is greater than the maximum depth (frozen to bottom), which will be used for ice harvesting

Water withdrawals from sources within the conservation zone are not expected to exceed the 5.0% total volume criteria established by DFO. For lakes that fall under the 5.0% criteria, environmental effects are expected to be limited.

For water source locations that require the withdrawal of water in excess of the 5.0% criteria, potential environmental effects might include:

- direct effects on fish habitat
- increased loss of riparian areas in the vicinity of waterbodies used as water sources – depending on the volumes of water withdrawn and timing (potential for effects upon water sources might range from low to moderate)

- localized small loss of bird and mammal habitat along the proposed winter access roads
- increased potential for siltation of watercourses and waterbodies if ground disturbance occurs at withdrawal locations and along the proposed winter access roads
- increased potential for disturbance of undiscovered heritage resources with the development of additional access roads

### **Primary Mitigation Strategies - Biophysical**

A review of existing information indicates that, although there are environmental sensitivities identified within the conservation zone such as fish populations in Travailant Lake and important wildlife habitat, these areas are not limited to the zone itself and extend beyond its boundaries.

To mitigate any potential effects of developing the water source locations within the conservation zone, efforts will be made to limit the size of the disturbance to the extent practical.

Typical measures that might be used to mitigate potential effects include:

- employment of local environmental and wildlife monitors
- constructing primarily in the winter and other periods that avoid sensitive wildlife and fish timing windows
- reducing the footprint of disturbance
- reducing grading and levelling to that required for a safe and efficient working surface
- implementing appropriate drainage, sediment, erosion and slope stability controls
- enforcing traffic and access controls
- avoiding environmentally sensitive areas where practical
- protecting heritage resources where practical
- applying good site management practices for dust suppression
- considering efficiency in equipment selection
- applying best management practices to reduce fuel use

- maintaining equipment exhaust systems

Site-specific abandonment and restoration plans will be developed once the resource development plans have been finalized.

## **Human Environment Setting**

This area does not contain any year round settlements. The region around Travaillant Lake is used by the local people on a seasonal basis for subsistence hunting, fishing and trapping activities. The majority of use throughout the region is centred around lakes, with travel routes or trails connecting the areas.

## **Heritage Resources**

The conservation zone contains sites that are culturally significant to the Gwich'in people. These sites consist of burial grounds, old trails, camps and sacred places.

In general, the region in and around Travaillant Lake was, and still is, a highly used area for, among other things, hunting, trapping and fishing for the people of Tsiigehtchic (Heine et al. 2001). This area has abundant resources, and many lakes and streams where fish can be caught year round. Travaillant Lake, in particular, is important for fishing. In the past, people would spend their winters in the Travaillant Lake area in houses that were more permanent than others in the GSA (Heine et al. 2001: 126). Many references are made to overland trails in the existing literature. These trails generally followed the Mackenzie River along to the Nagwichoonjik national historic site, which is located on the Mackenzie River between the Thunder River and Point Separation.

A preliminary investigation of the area was undertaken as part of the 2003 summer fieldwork for the heritage resources program. No archaeological sites were identified during the course of these investigations. A few axe and saw cut trees were noted on the side and crest of a large hill on the east side of an area proposed for testing. These stumps are less than 50 years in age (likely less than 30) and are not in any sort of arrangement that would indicate a traditional use of the area, such as hunting, trapping or camp area associated with traditional use. The most likely explanation is that the area relates to use during forest fire fighting or a similar isolated event. No other identifiable cultural or heritage artifacts or sites were noted.

The nature of the heritage resource potential and results of preliminary investigations at this location were provided to the Prince of Wales Northern Heritage Centre (PWNHC) in a report under permit 2003-933.

Geotechnical testing proceeded at the location during the winter of 2003-2004. A further heritage resource investigation was completed in the summer of 2004 in a report under permit 2004-956 to the PWNHC. No cultural materials were noted during these investigations.

## Human Environment Effects

Effects on the human environment that could be associated with developing the potential water sources, including the winter access roads, within the conservation zone include:

- potential reduction in habitat available for subsistence activities such as trapping, food gathering and hunting
- potential for increased access within the conservation zone

Increased access has the potential to increase recreational and subsistence harvesting opportunities in the area for the short term, but this should not have long term effects because proper reclamation will be undertaken. The small footprint of the site and the short-term nature of the water withdrawal activities should have limited effects on traditional use activities in the area.

## TRANSPORTATION ZONE

### Biophysical Setting

The Campbell Lake infrastructure site and borrow sites 2.061P and 2.073P are located within a two-kilometre wide buffer zone along the Dempster Highway.

At present, there are no manmade sources of light at any of these sites. The acoustic environment is dominated by the sounds of nature, although occasional traffic on the Dempster Highway adds to background noise levels.

All three sites occur in treed areas characterized by a mix of white or black spruce, Alaska birch, or aspen with an understory of shrubs such as ground or water birch, willow, green alder and Labrador tea (see [Figure C-1](#), [Figure C-2](#), [Figure C-3](#) and [Figure C-4](#)).

The Campbell Lake site and borrow site 20.073P are each crossed by a small unnamed watercourse, having either ephemeral or intermittent flow.

### Biophysical Effects and Mitigation

In addition to the potential effects and mitigation discussed previously for the access roads in the conservation sites, the Campbell Lake site will be visible from the Dempster Highway throughout the construction period. Borrow sites 2.061P and 20.073P might also be seen during certain periods, if only because of light from vehicles, equipment and site lighting.

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Figures C.3 and C.4 have been moved to reduce file size. To view them, click on the link to the figure in the web page List of Figures for these documents.

Lighting will be used during non-daylight hours, which, during the winter months, might mean periods where lighting is required on a 24 hour basis. Conversely, during the late spring and through the summer months, external lighting might not be required at all because of the extended daylight hours.

The sites will be partially screened by trees and the visual effect of lighting can be partially reduced by proper placement and use of lighting only in areas where required.

### **Heritage Resource Setting**

The Campbell Lake infrastructure site and borrow site 20.073P were inspected as part of the 2004 field reconnaissance program for heritage resources. No new heritage sites were recorded at either site as a result of the surface reconnaissance. Three previously recorded sites are located close to borrow site 20.073P. Two are within five kilometers of the Campbell Lake site.

Borrow site 2.061P was included in the 2002 field reconnaissance program. One new heritage site was recorded near the development area. Details of this site are on file with the PWNHC in a report submitted in association with permit 2002-916.

### **Heritage Resource Effects and Mitigation**

Prior to site development, and if required, a Heritage Resource Impact Assessment will be conducted and provided to the PWNHC. If it is determined that the development will affect any heritage resource, mitigation plans will be prepared. Regulations in the Northwest Territories prevent the publication or distribution of this information to the public. This information can only be obtained, with explicit approval, from the PWNHC.

### **Tourism and Recreation Effects and Mitigation**

Tourism and recreation could be adversely affected by the proposed infrastructure and borrow site construction activities because of restricted access or a change to existing travel routes. Most tourism activities occur during the summer months and construction will take place primarily over the winter, although some construction activities are planned during the summer months at the three sites.

Sensory disturbance because of increased traffic noise and emissions during construction could adversely affect the quality of other recreation activities, particularly those winter activities enjoyed by local community members, such as snowmobiling or cross-country skiing. However, it is expected that these activities will primarily occur near established communities and there will be less recreational use in the more remote areas.

Following completion of construction activities, there could be a positive effect to recreation because of access to previously inaccessible areas along the right-of-way, particularly south of Inuvik.

If the workers required to construct the Campbell Lake infrastructure site and borrow sites 2.061P and 20.073P take part in community tourism or recreation in their free time, there could be effects to other tourists or recreational users. Controls will be set in place to limit construction worker participation in these activities. Construction workers will be provided with ample recreational opportunities within camps. However, if southern workers partake in tourist activities during their free time, such as the days before or after work assignments, the tourism industry would benefit from an increased volume of visitors.



## **INTRODUCTION**

This appendix describes the public involvement program used to gather, assess and consider input from northern residents and communities regarding the activities proposed in this Gwich'in land use plan exception application. This program has been designed and conducted according to the Mackenzie Valley Land and Water Board's *Public Involvement Guidelines for Permit and License Applicants to the Mackenzie Valley Land and Water Board*, dated October 2003 (the Guidelines).

Public involvement activities have taken place in the GSA since 2001 with respect to various interrelated aspects of the Mackenzie Gas Project:

- project overview and design concept
- proposed pipeline route, facilities and infrastructure plans
- the Environmental Impact Statement
- geotechnical investigations programs and research work
- consultation and benefits principles
- land access and benefit agreements

The public involvement processes for these interrelated aspects and the public involvement activities specific to this exception application have both supported and contributed to this exception application.

A variety of tools and forums have been used to collect public feedback, to identify potential effects and to consider appropriate mitigation. Collection of traditional knowledge (TK) has been one of the important parts of the process. Feedback and concerns gathered from all the public involvement processes have been considered for this application.

The objectives and principles of the public involvement program have been applied consistently for all aspects of the project, and are applicable to activities proposed on Crown, private and Commissioner's lands.

## **PUBLIC INVOLVEMENT PROGRAM**

The objectives, principles, methods and materials used for the public involvement program are summarized in this topic.

## **Public Involvement Objectives**

Consistent with the Guidelines, the objectives of the public involvement program include:

- advising the community that an application is forthcoming
- introducing the developments to key stakeholders, including GSA communities, Aboriginal organizations and regulatory authorities that might be affected by the developments
- identifying and responding, to public concerns
- considering concerns and incorporating TK
- discussing how negative effects will be reduced
- discussing how development plans were modified or prepared to address public concerns
- ensuring an adequate extent of public involvement

## **Public Involvement Principles**

The principles underpinning the public involvement objectives include the following attributes:

- transparency - providing comprehensive and relevant information about the project that is understandable for non-technical people
- inclusiveness - ensuring all local people, Aboriginal groups and regulatory parties that might be affected by the project are given the opportunity to participate in the public involvement program
- respect - ensuring the views and opinions, culture, language and level of education of all participants as well as the protocols and traditional communication structure are respected
- reasonableness - ensuring the process and time required for reviewing and providing concerns and comments of the residents are reasonable

## **Public Involvement Program Methods**

This section discusses the public involvement methods and activities conducted, the consultation tools and forums used, the materials provided and the communities and stakeholders involved. An overview of the methods used to develop a TK study is also provided.

The public involvement program has been conducted by:

- fieldworkers hired through community organizations by Imperial to distribute information and record concerns
- northern residents, hired by Imperial to act as community representatives
- northern residents, hired to act as regional representatives at the Imperial regional office in Inuvik
- employees and contractors of Imperial, who work closely with the northern representatives to supply information on the project

Methods that have been used to provide information to northern communities include:

- door-to-door, person-to-person informal meetings
- informal telephone communications
- distribution of written material, videos and CDs
- community public meetings
- providing accessible project staff
- meetings with specific groups in communities
- meetings specifically requested by northern communities and residents
- workshops
- traditional knowledge studies conducted by local communities

Activities that have been, and continue to be, part of the public involvement program include:

- identifying key stakeholders
- providing information via local radio stations
- contacting landowners and rights holders that could be affected by the proposed developments
- contacting local community organizations
- developing project information packages including maps, videos and CDs
- distributing project information to key stakeholders
- establishing regional offices to provide a convenient source of information on the project and employment opportunities, as well as a place to voice comments and concerns about the proposed developments

- hiring fieldworkers from the community to assist with public involvement activities
- interacting with youth and educators in schools and training centres
- placing advertisements in local newspapers
- posting announcements regarding the location and dates for open houses

### **Public Involvement Program Materials**

Various materials have been created and used for public involvement purposes. These include:

- a Job and Business Opportunities folder and brochure
- periodic newsletters
- artist's impressions of possible production field development options and pipeline facilities
- detailed maps of the proposed pipeline route, infrastructure sites and access roads
- information booklets containing descriptions, maps and pictures of site specific infrastructure plans, geographically bundled to accommodate local understanding
- EIS plain language summary
- Elder and youth Mackenzie Gas Project story booklets
- a Mackenzie Gas Project folder with inserts and fact sheets

The inserts or fact sheets, which are updated periodically, include information relating to:

- general project overviews with maps
- business opportunities
- compressor facilities
- education and training opportunities
- employment opportunities

- composition of natural gas
- natural gas production fields, including the Inuvik area facility
- gathering system design and location
- infrastructure requirements and logistics supporting construction
- gas and NGL pipelines
- pipeline construction techniques
- project phases and schedules
- the proponents
- public involvement - describing commitment, process, topical information and the TK process
- the regulatory process

These materials have been distributed broadly throughout the GSA, primarily as handouts at community meetings and in meetings with interested groups. They have also been mailed or delivered as part of door-to-door campaigns and sent to local leaders, the public, regulatory agencies and elected officials.

Additionally, VHS videos and DVDs have been developed for use at various forums, schools, and agencies. They include:

- *"Building a Northern Pipeline"* (available in English, Inuvialuktun, North Slavey, South Slavey and Gwich'in languages)
- *"Northern Pipeline Construction - Step by Step"* (available in English)
- *"Mackenzie Gas Project Tour of Pipeline Construction"* (available in English)

A project website ([www.mackenziegasproject.com](http://www.mackenziegasproject.com)) has also been developed to provide up-to-date project information.

## **PUBLIC INVOLVEMENT ACTIVITIES**

Public involvement activities have been undertaken for various interrelated aspects of the project including the overall project description, the proposed pipeline route, facilities and infrastructure plans, EIS, geotechnical investigations and research programs, land access and benefits within the GSA (collectively, the public involvement program). These activities have included about 120 meetings in the GSA, with attendance of about 1,570 since 2001.

Project infrastructure plans were first introduced in the GSA during band council and community meetings in Tsiigehtchic in November 2002.

During February 2003, meetings held in Inuvik, Fort McPherson and Tsiigehtchic, and subsequent meetings held in 2003 in all four GSA communities (including Aklavik), the locations and types of project infrastructure were discussed extensively. Maps showing proposed locations for construction camps, equipment, materials and fuel storage sites, barge landings and borrow sites were used to aid in these discussions. Initially, Imperial proposed two temporary infrastructure camps in the GSA, as well as a temporary barge landing location on the Mackenzie River at the mouth of the Travaillant River.

The Travaillant Lake camp was proposed in the Travaillant Lake-Thunder River area, with access for camp construction and re-supply from a barge landing location at the mouth of the Travaillant River. However, some members of the Tsiigehtchic community were opposed to having an infrastructure camp located in this area and were also opposed to the proposed barge landing location at the mouth of the Travaillant River. After further consideration and evaluation, Imperial determined that the Travaillant Lake camp location and the Mackenzie River-Travaillant River temporary barge landing location would be withdrawn from the development plans and access to this area of the pipeline right-of-way would be achieved using temporary infrastructure facilities and a temporary barge landing site proposed near Little Chicago in the Sahtu Settlement Area.

The Campbell Lake temporary infrastructure camp was proposed in the Campbell Lake area on GSA private lands. The Inuvik Town Administration preferred that the Campbell Lake camp be established in Inuvik, whereas the community residents expressed concerns about potential increased social problems with having a camp too close to the community. After further consideration, Imperial re-confirmed that the proposed Campbell Lake camp would be located on GSA private lands near Campbell Lake. Imperial also proposed that the existing Northern Transportation Company Limited (NTCL) barge landing site in Inuvik would service the Campbell Lake camp.

During the summer of 2003, Imperial hired field workers and community monitors from Fort McPherson, Tsiigehtchic and Inuvik through the Gwich'in Tribal Council (GTC) and the renewable resource councils (RRCs) to provide guidance during biophysical data gathering, infrastructure and facility site reconnaissance activities, as well as numerous other scientific studies.

In January and February 2004, community meetings were held in all four local communities, where updated information was provided on the proposed developments for the Inuvik area facility (inside the GSA, immediately south of the GSA-ISR regional boundary), the temporary infrastructure camps and the barge landing sites.

In April 2004, meetings were held in Fort McPherson and Tsiigehtchic to provide the communities with information on the upcoming 2004 summer reconnaissance program.

In May 2004, Imperial and the GTC established a consultation fieldworker program whereby the GTC would subcontract to Imperial and would hire one fieldworker from each of the GSA communities. The fieldworkers were required to meet with and interview members of their respective communities whom they considered to be past or active land users, or those who had an interest in the land through which the proposed pipeline is to be routed.

In June and July 2004, community workshops and public meetings were held in each GSA community. In addition to other project information and updates, the communities were provided with information on the 2004 summer reconnaissance program and the 2005 winter field geotechnical investigation program.

Imperial developed an extensive one-week training program for the consultation fieldworkers in July 2004. It included familiarization with the public involvement materials, role-play exercises and practice within the community and mentoring.

Between mid-July and mid-September 2004, the consultation fieldworkers in Inuvik, Fort McPherson, Aklavik and Tsiigehtchic conducted about 80 one-on-one meetings with local residents. Videos were shown, handouts were provided and concerns recorded. Weekly telephone conferences were held between the fieldworkers and project staff to monitor progress and improve effectiveness during the program.

During the summer of 2004, Imperial hired field workers and community monitors from Tsiigehtchic and Inuvik through the GTC and RRCs to provide guidance during biophysical data gathering, infrastructure and facility site reconnaissance activities, as well as numerous other scientific studies.

In October 2004, public meetings were held in Inuvik, Aklavik and Fort McPherson to summarize the findings of the consultation fieldworker program and to encourage input from anyone who was not previously interviewed, followed by a detailed project permit application (PPA) presentation. Information was also provided regarding the proposed Gwich'in land use plan amendment and exception applications. Out of respect for the passing of a community Elder in Tsiigehtchic, the public meeting in that community was postponed and rescheduled to December 21, 2004.

Since late November 2004, Imperial's GSA regional liaison has been interviewing individuals that, either in the past or currently, use the Travaillant Lake, Mackenzie/Tree River Conservation Zone area for traditional land use. Information on the proposed development was presented and concerns raised were recorded.

A focus group meeting was held in Inuvik on December 22, 2004, with members of all the GSA community band councils and RRCs, the Gwich'in Renewable Resource Board (GRRB), the GTC and the Gwich'in Social and Cultural Institute (GSCI). The purpose of this meeting was to provide information on the applications for an amendment and an exception to the Gwich'in land use plan.

Since January 2004, public involvement activities that directly support the project permit applications have included about 25 meetings in the GSA, with attendance of about 430. As well, about 80 one-on-one meetings with community members were conducted by consultation fieldworkers. [Table D-1](#) lists these public involvement activities.

Additional public involvement activities have been conducted specifically for the amendment and exception applications. Details of these activities are included in [Table D-3 Public Involvement Meetings, Concerns Raised and Responses](#).

As community concerns were collected, the information was distributed, as appropriate, to engineering, environmental, land and benefits project groups for review and evaluation.

The basis for the community requests and concerns were considered in conjunction with Imperial's objectives for safety, environmental protection, cost and schedule. Community requests were adopted and alternatives were established, where feasible.

During subsequent communications with the communities, community concerns were reviewed, alternatives were discussed and the reasons for selected options were explained.

**Table D-1: GSA Public Involvement Activities**

<b>Meeting Date</b>	<b>Location (Number of Attendees)</b>	<b>Meeting Format</b>	<b>Community or Organizations</b>	<b>Nature of the Meeting</b>
January 21, 2004	Tsiigehtchic (13)	Focus Group Meeting	Gwichya Gwich'in Renewable Resource Council Gwichya Gwich'in Band Council Hamlet of Tsiigehtchic Metis Council	Impact assessment and mitigation meeting. Presentation on Ikhil route, infrastructure and logistics.
January 23, 2004	Aklavik (25)	Public Meeting	Aklavik residents	Impact assessment and mitigation meeting. Presentation on Ikhil route, infrastructure and logistics.

**Table D-1: GSA Public Involvement Activities (cont'd)**

<b>Meeting Date</b>	<b>Location (Number of Attendees)</b>	<b>Meeting Format</b>	<b>Community or Organizations</b>	<b>Nature of the Meeting</b>
February 5, 2004	Fort McPherson (28)	Focus Group Meeting	Tetlit Gwich'in Council Tetlit Gwich'in Elders Committee Tetlit Gwich'in Renewable Resource Council Metis Local #58	Impact assessment and mitigation meeting. Presentation on Ikhil route and Inuvik area facility.
February 5, 2004	Fort McPherson (18)	Public Meeting	Fort McPherson residents	Impact assessment and mitigation meeting. Presentation on Ikhil route and Inuvik area facility.
April 27, 2004	Fort McPherson (12)	Meeting	Hamlet Council - Mayor and Council members	2004 summer reconnaissance program
April 27, 2004	Fort McPherson (2)	Meeting	Tetlit Gwich'in Council - Sub Chief and Band Manager	2004 summer reconnaissance program
April 27, 2004	Fort McPherson (6)	Meeting	Tetlit Gwich'in Renewable Resource Council	2004 summer reconnaissance program
April 28, 2004	Inuvik (7)	Meeting	Nihtat Gwich'in Renewable Resource Council	2004 summer reconnaissance program
April 28, 2004	Tsiigehtchic (8)	Meeting	Gwichya Gwich'in Renewable Resource Council	2004 summer reconnaissance program
April 29, 2004	Inuvik (1)	Meeting	Gwich'in Social and Cultural Institute	2004 summer reconnaissance program
June 25, 2004	Tsiigehtchic (12)	Community Workshop	Renewable Resource Council Gwichya Gwich'in Band Council Tsiigehtchic Band Council Tsiigehtchic Elders	

**Table D-1: GSA Public Involvement Activities (cont'd)**

Meeting Date	Location (Number of Attendees)	Meeting Format	Community or Organizations	Nature of the Meeting
			Housing Tenant Relations Office District Education Authority Tsiigehtchic residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
June 25, 2004	Tsiigehtchic (14)	Public Meeting	Tsiigehtchic residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 5, 2004	Inuvik - Gwich'in only (9)	Community Workshop	Nihtat Gwich'in Council Gwich'in Elders and youths	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 5, 2004	Inuvik (12)	Public Meeting	Inuvik residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 7, 2004	Aklavik (24)	Community Workshop	Renewable Resource Council Gwich'in Tribal Council (Ehdiitat Gwich'in Council) Band Councils (Indian and Northwest Metis)	

**Table D-1: GSA Public Involvement Activities (cont'd)**

<b>Meeting Date</b>	<b>Location (Number of Attendees)</b>	<b>Meeting Format</b>	<b>Community or Organizations</b>	<b>Nature of the Meeting</b>
			Aklavik Community Corporation Aklavik Hunters and Trappers Committee Aklavik Elders Committee	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 7, 2004	Aklavik (19)	Public Meeting	Aklavik residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 8, 2004	Fort McPherson (27)	Community Workshop	Tetlit Gwich'in Council Tetlit Gwich'in Elders Committee Tetlit Gwich'in Renewable Resources Council Fort McPherson residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July 8, 2004	Fort McPherson (21)	Public Meeting	Fort McPherson residents	Provide an update and information regarding the three anchor fields and the gathering system, the 2004 summer reconnaissance program, and the 2005 winter field geotechnical investigation program.
July-August, 2004	Tsiigehtchic (22)	Fieldworker One-on-One Visits	Tsiigehtchic residents	Provided information on the PPAs and proposed developments.
July-August, 2004	Aklavik (14)	Fieldworker One-on-One Visits	Aklavik residents	Provided information on the PPAs and proposed developments.

**Table D-1: GSA Public Involvement Activities (cont'd)**

<b>Meeting Date</b>	<b>Location (Number of Attendees)</b>	<b>Meeting Format</b>	<b>Community or Organizations</b>	<b>Nature of the Meeting</b>
July-September, 2004	Inuvik (12)	Fieldworker One-on-One Visits	Inuvik residents	Provided information on the PPAs and proposed developments.
August – September, 2004	Fort McPherson (31)	Fieldworker One-on-One Visits	Fort McPherson residents	Provided information on the PPAs and proposed developments.
October 25, 2004	Fort McPherson (50)	Public Meeting	Fort McPherson residents	Provided a project overview and an update on the 2004 summer reconnaissance program, the 2005 winter field geotechnical investigation program, PPAs, amendment and exception applications, and an update on the Aboriginal Pipeline Group.
October 27, 2004	Aklavik (31)	Public Meeting	Aklavik residents	Provided a project overview and an update on the 2004 summer reconnaissance program, the 2005 winter field geotechnical investigation program, PPAs, amendment and exception applications, and an update on the Aboriginal Pipeline Group.
October 28, 2004	Inuvik (45)	Public Meeting	Inuvik residents	Provided a project overview and an update on the 2004 summer reconnaissance program, the 2005 winter field geotechnical investigation program, PPAs, amendment and exception applications, and an update on the Aboriginal Pipeline Group.
December 21, 2004	Tsiigehtchic (40)	Meeting	Tsiigehtchic residents	Updated information on PPAs, 2004 summer program, the 2005 winter work program, applications for an amendment and exception to the Gwich'in land use plan.

**Table D-1: GSA Public Involvement Activities (cont'd)**

<b>Meeting Date</b>	<b>Location (Number of Attendees)</b>	<b>Meeting Format</b>	<b>Community or Organizations</b>	<b>Nature of the Meeting</b>
December 22, 2004	Inuvik (20)	Focus Group Meeting	Gwich'in Band Councils Gwich'in Renewable Resource Councils Gwich'in Renewable Resource Board Gwich'in Tribal Council Gwich'in Social and Cultural Institute	Provided a project overview and information on the applications for an amendment and exception to the Gwich'in land use plan.

## **TRADITIONAL KNOWLEDGE STUDY METHODS**

This topic summarizes the methods used, and the progress made, in collecting traditional knowledge in the GSA communities of Aklavik, Fort McPherson, Inuvik and Tsiigehtchic and incorporating it into the environmental assessment and project design.

Traditional knowledge has been used through many phases of the project. The sources of information have included published reports, community concerns expressed at community meetings and regional workshops, and local knowledge provided by community participants in environmental field programs.

Imperial has initiated a formal traditional knowledge study with the communities in the GSA. The objectives of the TK studies were to ensure that traditional knowledge is considered and that adjustments to the development are incorporated during the design and execution phases of the project, where appropriate.

The work plans for the study are to review existing information and collect new information, and to use both sources of information to develop a TK baseline report.

Steps that are required include:

- signing a contract with the GSCI to undertake a TK study of the traditional use area that could be affected by the project
- establishing a TK working group to develop a framework, determine content, establish a schedule and provide guidance for the TK study with representatives from the:

- Elders' councils, RRCs and tribal councils in each of Aklavik, Inuvik, Fort McPherson, and Tsiigehtchic
- Gwich'in Tribal Council
- Gwich'in Renewable Resource Board
- Gwich'in Social and Cultural Institute
- Mackenzie Gas Project
- project environmental consultants group
- determining methods of community participation to ensure that community participants are hired to complete study tasks such as:
  - conducting interviews
  - preparing written reports
  - providing logistical and administrative support
  - recording and processing TK data
  - translating between indigenous languages and English
- determining the types of information to be documented such as historical cultural and spiritual sites, hydrology and hydrogeology, traditional land use, vegetation, wildlife, birds, climate, cumulative effects, fisheries, human health, soil conditions, and other relevant social and environmental issues
- defining the TK study area that might be influenced by project effects on traditional and historical uses and environmental components
- reviewing existing TK information sources and collecting new data by interviewing holders of TK
- preparing a community report that summarizes the approach, methods, and results of the TK study and is designed for distribution to community-based organizations (The reports will be produced by the project coordinator with input from the TK working group and project team. Copies will also be submitted to the project team and with the permission of the community agencies, might be submitted to regulatory authorities as part of the regulatory approval process for the project.)

### **TK Progress**

The TK study activities in the GSA up to December 2004 include:

- The environmental consultants group engaged organizations and consulted with them in regard to Aurora Research Institute (ARI) research licence

applications. The ARI granted research licences to undertake TK studies in 2002, 2003 and 2004.

- The GTC suggested the project work with the GSCI to develop a process for completing the TK studies.
- The GSCI was given both the presentation and a copy of *A Cooperative Approach to Traditional Knowledge Studies for the Mackenzie Gas Project in the Gwich'in Settlement Area*.
- The GSCI and Imperial reached an agreement that the GSCI will participate in the studies as a community contract authority and will have responsibility for undertaking the TK study according to the contract. In addition, the GSCI and Imperial reached an agreement on a work plan.
- The GSCI and the environmental consultants group provided the GTC with progress updates and requested direction regarding the TK studies.
- The GSCI identified and hired a study coordinator and a GIS analyst for the TK study.
- The GSCI hired Gwich'in individuals, including translators, and a GIS assistant, to assist them in completing the study.
- The Gwich'in TK study coordinator and GIS analyst reviewed existing data sources to identify TK relevant to this study and produced a report. The report identified gaps in the existing data sources and provided a focus for the collection of new data to close those existing gaps.
- The GSCI began interviewing holders of TK in Aklavik, Inuvik, Fort McPherson, and Tsiigehtchic and several interview transcripts have been produced.

Table D-2 contains a summary of meetings related to the TK program that have taken place in the GSA. These meetings, held in conjunction with the collection of TK, were opportunities for public involvement on the project.

**Table D-2: GSA Traditional Knowledge Consultation Activities**

Meeting Date	Community or Organization Contacted	Topics Discussed
March 20, 2002	GSCI	ARI research licence application
June 18, 2002	GSCI	Presentation describing <i>A Cooperative Approach to Traditional Knowledge Studies in the Gwich'in Settlement Area</i>
August 14, 2002	GSCI	TK study methods

**Table D-2: GSA Traditional Knowledge Consultation Activities (cont'd)**

<b>Meeting Date</b>	<b>Community or Organization Contacted</b>	<b>Topics Discussed</b>
August 20, 2002	GSCI	TK study methods
August 27, 2002	GSCI, GTC – President	TK study methods and a presentation describing <i>A Cooperative Approach to Traditional Knowledge Studies in the Gwich'in Settlement Area</i>
October 8, 2002	GTC	Provided information on proposed TK study methods and requested permission to proceed. Joint presentation provided by the environmental consultants group and GSCI.
November 8, 2002	GSCI	TK study methods
February 21, 2003	GSCI	TK study methods
April 4, 2003	GSCI	TK study methods and contractual arrangements
May 14, 2003	GSCI	TK study methods
June 4, 2003	GSCI	TK study methods and contractual arrangements
June 17, 2003	GSCI	TK study methods and contractual arrangements
July 25, 2003	GSCI	TK study methods and contractual arrangements
September 22, 2003	GSCI	TK study methods and contractual arrangements
October 7, 2003	GSCI	TK study methods and contractual arrangements
October 16, 2003	GSCI	TK contractual arrangements
October 17, 2003	GTC Board	Proposed terms of reference and work plan for Gwich'in TK study
October 23, 2003	GSCI	TK study methods and contractual arrangements
November 25, 2003	GSCI	TK study contract signed
December 12, 2003	GSCI	TK study schedule
January 10, 2004	GSCI	TK study schedule and contractual arrangements
January 28, 2004	GSCI	TK study contractual arrangements
February 25, 2004	GSCI	TK study methods
March 8, 2004	GSCI	Provided digital data including PDF map of the TK study area, geo-referenced TIFF files of the digital NTS (topographic) mapping and IRS (satellite imagery) for the GSA
March 23, 2004	GSCI	TK study methods
April 2, 2004	GSCI	Provided digital data including generalized infrastructure areas, granular resource areas, access for these features and pipeline route corridor

**Table D-2: GSA Traditional Knowledge Consultation Activities (cont'd)**

<b>Meeting Date</b>	<b>Community or Organization Contacted</b>	<b>Topics Discussed</b>
April 19, 2004	TK Study Coordinator	TK study methods
April 22, 2004	TK Study Coordinator and GSCI	TK study methods and progress
May 26, 2004	GSCI	TK study methods and progress
June 8, 2004	TK Study Coordinator	TK study methods and schedule
June 30, 2004	TK Study Coordinator and GSCI	TK study methods and schedule
September 13, 2004	TK Working Group	TK study methods and progress
October 13, 2004	TK Working Group	TK study methods and progress
November 10, 2004	TK Study Coordinator	TK study progress
December 9, 2004	TK Study Coordinator	TK study progress
December 17, 2004	TK Study Coordinator	TK study progress

### **SUMMARY OF GENERAL PUBLIC CONCERNS RELATING TO PROPOSED INFRASTRUCTURE**

The following is a summary of issues and concerns common to the communities and related to the proposed development in general:

- potential effects on infrastructure within the development area, including roads, water supply, waste treatment, medical and other social services
- effects of pipeline construction on local wildlife habitat and migratory routes
- effects of construction activities on fish spawning habitat
- preserving valued terrestrial, archaeological and culturally significant sites
- preserving the land and environment for future generations to engage in traditional pursuits
- potential effects on tourism
- ability of the people within communities to access training, employment and business opportunities
- effect of unions on the ability of local residents to qualify and access employment and business opportunities
- land access revenues and other associated benefits

Primary mitigation strategies were developed to address these concerns and are provided in [Appendix C](#).

**Public Concerns Specific to Developments in the Travaillant Lake, Mackenzie/Tree River Conservation Zone**

Imperial recognizes the environmental and cultural importance of the conservation zone to the local communities, and has taken steps to ensure that the impacts associated with pipeline construction through the conservation zone are reduced to the extent practical.

Imperial has heard, through public involvement activities, the issues and concerns of the local communities regarding potential developments in this area. Approximately 20 individuals were identified that, in the past or currently, use the conservation zone for hunting, fishing, trapping and vegetable harvesting. In addition to the public meetings and focus group discussions, numerous individuals have been interviewed and informed of the proposed developments in the conservation zone. Their concerns have been documented and included in this section.

[Table D-3](#) provides a list of meetings, groups or stakeholders involved, concerns raised and responses provided specific to the proposed developments in the conservation zone.

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
July 24, 2001	Tsiigehtchic (5)	Gwichya Gwich'in Renewable Resource Council	The proposed pipeline route is too close to important fishing lakes and passes through the Travaillant Lake protected area.	Comments were taken under advisement.
June 13, 2002	Tsiigehtchic (33)	Tsiigehtchic residents, Gwich'in Tribal Council, Tsiigehtchic Native Band Chief	Community expressed concern about geotechnical studies that are being conducted in the Travaillant Lake area. They have stated that they do not want any development near the Travaillant Lake area.	Community concerns were noted for future route evaluations. A set of preliminary pipeline route maps was left with the Chief for the community to review.
August 13-19, 2002	GSA (1)	Tsiigehtchic Community representative	A community representative participated in the route selection activities in the GSA. The community representative identified several cabins on Travaillant Lake.	Observations were noted.

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
August 20, 2002	GSA - Travaillant Lake Area (1)	Tsiigehtchic Community Elder	<p>A community Elder indicated that he had no concerns with either the Travaillant Lake east route or Mackenzie Highway extension route, however the Travaillant Lake east route was preferred. He did stress that Travaillant Lake is a very important fishing area for the community.</p> <p>The Elder also noted that the people from Arctic Red River community have a camp at Sunny Lake, cabins at Bathing Lake, cabin on Travaillant Lake, a cabin and camp on Sandy Lake, a cabin on an unnamed lake south of Travaillant Lake, and an old cabin and camp on Trout Lake.</p>	Observations were noted.
November 26, 2002	Tsiigehtchic (10)	Gwichya Gwich'in Band Council	<p>The band council emphasized that important burial sites are located around Travaillant Lake and these sites should not be disturbed. They also advised that the creeks in the Travaillant Lake area tend to overflow and flood the willows. They advised that it would not be a good location to build a pipeline. The band council recommended a pipeline reroute east or west of Travaillant Lake to avoid the area.</p>	<p>Imperial obtained community input on maps to identify an alternative route to the northwest.</p> <p>Imperial committed to review the requested reroute and provide the community with a response.</p> <p>On November 27, 2002, project personnel flew the area northwest of Travaillant Lake with a community member to refine the alternative route and mark it on a map.</p>

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses (cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
November 26, 2002	Tsiigehtchic (26)	Tsiigehtchic residents	<p>The proposed pipeline route crosses a community member's traditional lands. Concerns included:</p> <ul style="list-style-type: none"> <li>• there are many burial sites near the proposed pipeline route and they should not be disturbed</li> <li>• there are a number of graves at the mouth of the creek that enters the north end of Travaillant Lake</li> <li>• ice scour and flooding could damage the pipeline and cause a spill into these creeks and Travaillant Lake</li> <li>• the proposed route is too close to Travaillant Lake and should be moved at least two to three miles back (near David Lake)</li> <li>• additional burial sites are located on both sides of the Travaillant River where it enters the Mackenzie River and on both sides of Thunder River where it enters the Mackenzie River. These sites need to be protected.</li> </ul> <p>Other comments received from local community members included:</p> <ul style="list-style-type: none"> <li>• access of the right-of-way and temporary roads would allow people from other communities to access Tsiigehtchic's fish lakes without permission and the fish lakes could potentially be depleted</li> <li>• concern was raised about the noise from construction scaring away the woodland caribou</li> </ul>	<p>Imperial obtained community input on maps to identify an alternative route to the northwest.</p> <p>Imperial committed to review the requested reroute and provide the community with a response.</p> <p>On November 27, 2002, project personnel flew the area northwest of Travaillant Lake with a community member to refine the alternative route and mark it on a map.</p>

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses (cont'd)**

<b>Date</b>	<b>Location (Number of Attendees)</b>	<b>Groups or Stakeholders Involved</b>	<b>Concerns Raised</b>	<b>Responses Provided</b>
November 27, 2002		Tsiigehtchic Elder	Imperial arranged to take a local community Elder on a helicopter trip over the Travaillant Lake area. No concerns were raised.	None required.
December 19, 2002	Tsiigehtchic (6+)	Gwich'in Band Chief, Tsiigehtchic Elders, Tsiigehtchic RRC Coordinator	Concerns were raised over the proposed Travaillant Lake route. The community recommended moving the pipeline north east (about five miles farther away). It was suggested that a community working group be developed to determine a Travaillant Lake route. This working group would include representatives from the GTC, GLA and RRC.	Imperial agreed to review and respond to proposal to create a community working group to determine the Travaillant Lake pipeline route.
February 10, 2003	Tsiigehtchic (15)	Gwichya Gwich'in Council Chief and members, Tsiigehtchic RRC, Tsiigehtchic Elders, Tsiigehtchic residents, GSCI	The proposed pipeline reroute was discussed and the GSCI requested information on alternative routes being considered by Imperial. GSCI felt that the community would be more willing to accept the route if they had more information to consider.	Imperial advised that the proposed reroute was studied and accepted, resulting in the route being moved about 6.0 km northeast of Travaillant Lake.
June 5, 2003	Tsiigehtchic (14)	Tsiigehtchic Gwichya Gwich'in Band Council, Tsiigehtchic Community Corporation, Tsiigehtchic Elders, Tsiigehtchic RRC, Tsiigehtchic residents	The community stressed that Travaillant Lake area is important for its cultural and environmental value. The community requested a substantial reroute away from the fish spawning lakes. They also requested that more community input be sought out on the Travaillant Lake reroute.  Concern was raised by a local resident that the new route was not selected by all community members.	Imperial responded that the reroute was reviewed in previous meetings and endorsed by the family with ties to the Travaillant Lake area. An offer was extended to those present at the meeting to further review the maps showing the original and revised route.

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
September 3, 2003	Tsiigehtchic (17)	Tsiigehtchic Gwichya Gwich'in Band Council, GTC Board member, Tsiigehtchic RRC, Tsiigehtchic Elders Committee, Tsiigehtchic residents	A concern was raised about the proximity of an access road to Travaillant Lake and the proximity of a campsite to the fishing lake. (regarding the 2004 winter field geotechnical investigation program).	An additional meeting was scheduled with the community for September 10, 2003 to determine an acceptable access road route around Travaillant Lake.
September 10, 2003	Tsiigehtchic (10)	Gwichya Gwich'in Council Chief, Tsiigehtchic RRC, Tsiigehtchic Elders, GSCI, Tsiigehtchic HTC, Community Coordinator	Discussed the concern raised by the local community over the proximity of access roads and a camp near Travaillant Lake.	Alternatives were discussed and consensus reached on potential reroutes for the winter access roads and camps near Travaillant Lake.
October 2, 2003	Tsiigehtchic (6)	Gwichya Gwich'in Council Chief, Tsiigehtchic RRC, Tsiigehtchic Elders, Tsiigehtchic HTC, Tsiigehtchic residents	Concerns expressed regarding camps and access roads near Travaillant Lake, for the winter geotechnical investigation program.	Changes were discussed and agreed to for the winter access roads and the camps around Travaillant Lake area.
November 24, 2004	Inuvik (1)	Donald Modeste	No concerns raised regarding the lakes identified as potential water sources. Concern was raised that the lakes will not replenish themselves, therefore it is his believe that lakes without above ground or underground streams should not be used.	Imperial will be withdrawing limited quantities of water from these lakes and the water will return to the lakes during spring thaw.

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
November 25, 2004	Inuvik (1)	Howard Townsend	<p>Suggested that when water is taken from the lakes in the conservation zone area, that there are streams running in and out to replenish the water supply.</p> <p>Concern raised regarding the use of dynamite under the lakes or river, which might cause them to dry out.</p> <p>Imperial must ensure that they consult with the GTC, Land Administration, and GSCI on the amendment and exception applications.</p>	<p>Imperial will be withdrawing limited quantities of water from these lakes and the water will return to the lakes during spring thaw.</p> <p>Imperial does not anticipate using dynamite in the area. As well, the pipeline route will not be crossing any lakes in the GSA and detailed river crossing design is still ongoing.</p> <p>Imperial has initiated consultation with all key stakeholders as required by the Gwich'in land use plan.</p>
November 26, 2004	Inuvik (1)	Herbert Blake	<p>Concerns raised included:</p> <ul style="list-style-type: none"> <li>• whether compensation would be considered for the GTC and Tsiigehtchic in return for their approval to carry out activities in the protected area</li> <li>• has Imperial consulted with traditional land users and current day users in the area</li> <li>• the protected area should maintain status quo and no development should take place in a protected area</li> <li>• Mr. Blake acknowledged that as long as adequate consultation is done with the affected community and the GTC, he would consider agreement of the proposal for exception to the land use plan.</li> </ul>	<p>Compensation will be established through Access and Benefits agreements.</p> <p>Current and past traditional land users have been identified and are being interviewed by Imperial's GSA regional liaison.</p> <p>The Gwich'in land use plan provides provision for the pipeline corridor through the protected area. Imperial is seeking an exception to the plan to ensure that developments through the protected area reduce the impacts to the land and environment, to the extent practical.</p>

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
November 30, 2004	Inuvik (1)	Willard Hagen - Gwich'in Beneficiary (GLWB Chair and MVLWB Board member)	<p>No concerns raised over the location of borrow site 4.059AP.</p> <p>Expressed strong opposition to water being withdrawn from Travaillant Lake and development of the long access road to the lake.</p> <p>Imperial must ensure that it consults with the RRCs, the Gwich'in Councils, Elders and traditional and current land users.</p>	<p>Follow-up discussions will be held to advise Mr. Hagen that Travaillant Lake has been withdrawn from the project plans and no water will be taken from Travaillant Lake and the access road will not be required.</p> <p>Imperial has initiated consultation with all key stakeholders as required by the Gwich'in land use plan.</p>
December 1, 2004	Inuvik (1)	Willie Simon Modeste	<p>No concerns were raised with the location of borrow site 4.059AP as long as the area is levelled out and cleaned up after construction.</p> <p>Mr. Modeste prefers that no water be taken from Travaillant Lake and that no access road be built into Travaillant Lake.</p>	<p>Imperial will ensure that reclamation of the borrow site area is completed.</p> <p>Follow-up discussions will be held to advise Mr. Modeste that Travaillant Lake has been withdrawn from the project plans and no water will be taken from the lake and the access road will not be required.</p>
December 3, 2004	Inuvik (1)	Gabe Andre	<p>Concern raised with water withdrawal from Travaillant Lake and from lakes marked No. 81, No. 82 and No. 83 as they are fish lakes. It was suggested that water should be taken from sources outside the conservation zone.</p>	<p>Imperial will be conducting a follow-up discussion to advise Mr. Andre that Travaillant Lake and lakes No. 81 and No. 82 have been withdrawn from the project plans and no water will be withdrawn from these lakes.</p>

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
December 3, 2004	Inuvik (1)	Pierre Benoit	Expressed concern over water withdrawal from Travaillant Lake.	Follow-up discussions will be held to advise Mr. Benoit that Travaillant Lake has been withdrawn from the project plans and no water will be taken from the lake and the access road will not be required.
December 21, 2004	Tsiigehtchic (1)	Dan Andre	No concerns raised with the location of borrow site 4.059AP. Would like assurance that the water and wildlife will be protected and not affected. Does not want an access road built to Travaillant Lake or water withdrawn from it. Does not want water taken from the fish lakes around Travaillant Lake.	Follow-up discussions will be held to advise Mr. Andre that Travaillant Lake has been withdrawn from the project plans and no water will be taken from the lake and the access road will not be required.  Imperial expects that fish will be present in all lakes that have been identified as potential water sources. Therefore, the project will have to withdraw water from fish lakes. Methods used for water withdrawal will reduce potential impacts to fish.
December 22, 2004	Inuvik (20)	Gwich'in Band Councils Gwich'in Renewable Resource Councils Gwich'in Renewable Resource Board	No concerns were raised with the proposed development of borrow site 4.059AP in the conservation zone.	

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses  
(cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
		Gwich'in Tribal Council Gwich'in Social and Cultural Institute	Concern was raised about having multiple access routes to some lakes.	Imperial will review the proposed access routes to determine if multiple access routes to the lakes can be reduced.
January 5, 2005	Tsiigehtchic (1)	Julie Ann Andre, GRRC President	No concerns raised with the proposed borrow site 4.059AP. Ms. Andre stated that if Imperial has DFO approval to cross lake No. 81, then she has no concerns.	Imperial will advise Ms. Andre that lake No. 81 and GSA9 have been withdrawn from the development plans and there will be no need to cross lake No. 81 to get to lake GSA9.
January 5, 2005	Tsiigehtchic (1)	John Norbert, Sub-Chief	No concerns raised with the proposed borrow site 4.059AP. Suggested that Imperial use one access road to lakes No. 81 and No. 83 and not cross lake No. 81 to get to lake GSA9.	Imperial will advise Mr. Norbert that lake No. 81 and GSA9 have been withdrawn from the development plans. Therefore, there will be no need to cross lake No. 81 to get to lake GSA9.
January 5, 2005	Tsiigehtchic (1)	Noel Andre, Renewable Resource Coordinator	No concerns rose with the location of proposed borrow site 4.059AP. Concern raised regarding water withdrawal from fish lakes. Requested that the access road near lake No. 83 be moved closer to the right-of-way.	Imperial expects that fish will be present in all lakes that have been identified as potential water sources for the project. Therefore, the project will have to withdraw water from fish lakes. Methods used for water withdrawal will reduce impacts to fish.  Imperial will review lake No. 83 access.

**Table D-3: Public Involvement Meetings, Concerns Raised and Responses (cont'd)**

Date	Location (Number of Attendees)	Groups or Stakeholders Involved	Concerns Raised	Responses Provided
January 5, 2005	Tsiigehtchic (1)	Alestine Andre, GSCI Heritage Researcher	<p>Concerned that permafrost melting might occur at borrow site 4.059AP, which might cause landslides and blockage of creeks as the water flows to Travaillant Lake. Concerned that this might affect fish migration routes to and from Travaillant Lake.</p> <p>Concern was also expressed about the amount of traffic travelling the winter access roads, which will cause disturbance to the natural flow of water.</p>	<p>Imperial will ensure that reclamation of the borrow site area is completed such that it will not impact normal water flow.</p> <p>The proposed work will be conducted during winter months when streams are frozen and will not cause disturbance to the natural flow of water.</p>

## PROJECT MODIFICATIONS RESULTING FROM THE PUBLIC INVOLVEMENT PROGRAM

Modifications to project developments which have resulted from public involvement activities in the GSA related to the conservation zone are described in this subject.

## PIPELINE REROUTES

### Travaillant Lake Pipeline Reroute

Concerns were raised by the community of Tsiigehtchic, the Chief and Council, Elders and the RRC regarding the original pipeline route through the Travaillant Lake, Mackenzie/Tree River Conservation Zone.

During public involvement in late 2002, Imperial's route evaluation team, with input from representatives of the community of Tsiigehtchic, developed an alternative, known as the Tsiigehtchic alternative route. This was selected as the proposed route for this segment of the pipeline.

The Tsiigehtchic alternative added about 3.0 km of pipeline, must accommodate more side slopes and more ice-rich terrain, parallels 2.5 km less of existing linear disturbances and will increase the costs relative to the previous route. However, it addressed the main concerns expressed by members of the community as it is farther away from Travaillant Lake (see [Figure D-1](#)), avoids burial sites that are understood to be near the adjusted preliminary route and is about 2.0 km shorter through the conservation zone.

## **INFRASTRUCTURE SITE RELOCATIONS**

### **Travaillant Lake Camp**

Initially, a Travaillant Lake temporary infrastructure camp was proposed in the Travaillant Lake-Thunder River area, with access for camp construction and re-supply from the barge landing location at the mouth of the Travaillant River. Certain members of the Tsiigehtchic community were opposed to developments in this area because burial sites are located on both sides of the Travaillant and Thunder Rivers, where they enter the Mackenzie River.

The Tsiigehtchic community also indicated that they did not want a temporary infrastructure camp or access to the Travaillant Lake-Thunder River area as it would potentially increase access to this fishing area.

After further consideration and evaluation, Imperial determined that the Travaillant Lake camp location and the proposed temporary barge landing location would be withdrawn from the plans. The temporary infrastructure facilities and a temporary barge landing site proposed near Little Chicago in the Sahtu Settlement Area would be used to access this area of pipeline right-of-way.

### **Winter Access Road and Temporary Work Camp**

In September and October 2003, public involvement meetings were held in Tsiigehtchic to discuss the 2004 winter field geotechnical investigation program. Routing of winter access roads and temporary camps near the Travaillant Lake area were of concern to the Gwichya Gwich'in Band Council, RRCs and Elders of Tsiigehtchic because they felt the proposed developments were too close to Travaillant Lake.

Based on those meetings, the winter access roads and temporary camps for the geotechnical program were relocated to alternate locations that were identified in cooperation with community members.

## **WATER SOURCE LOCATIONS**

### **Travaillant Lake Water Source**

In December 2004, Imperial withdrew Travaillant Lake and proposed several alternative lakes as main water sources for both the 2005 winter field geotechnical investigation program and the pipeline construction program. This decision was a result of community objections to access and water withdrawal from Travaillant Lake.

## **BORROW SITE MODIFICATIONS**

### **Borrow Site 2.051BP**

For the preliminary investigation of potential borrow sites, two sites were proposed for the 2004 winter field geotechnical investigation program. They were 2.051PA and 2.051PB (located on private lands).

Representatives of the GTC and Inuvik Band Council were opposed to the proposed location for borrow site 2.051PB due to the presence of raptors and rare plants in the area. As well, the proposed borrow site is located almost entirely within the Campbell Hills Special Management Zone. After consideration of these views, borrow site 2.051PB was withdrawn from the 2004 winter field geotechnical investigation program.

Alternatively, Imperial plans to investigate borrow site 2.051PA, which is located within the general use zone. An environmental study that was conducted during the summer of 2004 identified that no rare plants were found at the borrow site. This area has been identified as high-quality nesting habitat for raptors. If nesting raptors are present, construction during the nesting period will be limited.

### **Borrow Site 4.060P**

In October 2004, borrow site 4.060P was withdrawn from the development plans through the Travaillant Lake, Mackenzie/Tree River Conservation Zone to limit disturbance in the conservation zone.

Figure D.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.

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TITLE       **Gwich'in Land Use Plan – Application for an Exception**  
SECTION    Appendices  
SUBJECT    E:   Foldout Maps

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<b>Map No.</b>	<b>Title</b>	<b>Revision</b>
107-0000-011-454 001	Project Overview Map	2
107-0000-011-491 001	Regional Water Source Overview Map	0
107-0000-011-494 001	Regional Land Use Plan Overview Map	1



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