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Review of the Ikhil Gas
Development and Pipeline
Regulatory and Environmental
Process: Lessons Learned

**Review of the Ikhil Gas Development and Pipeline Regulatory
and Environmental Process:
Lessons Learned**

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Executive Summary

What is the Report?

Components	<p>The objective of the Ikhil Case Study was to identify important lessons learned of relevance to future hydrocarbon development within the Mackenzie Delta that relate to the effectiveness and efficiency of the regulatory review and approvals process and the environmental assessment process.</p> <p>The focus of the review was to identify the important strengths and weaknesses of the environmental assessment process, the regulatory review and permitting process, and follow-up activities (e.g., post-construction monitoring and protection planning). The review did not include detailed technical reviews of baseline environmental data.</p>
Location	Ikhil Gas Development, Inuvik, NT
Proponent	Inuvialuit Petroleum Corporation

Why was the Review Done?

Environmental Studies Research Fund	<p>The Ikhil Project is currently the only hydrocarbon production and transportation facility in the Inuvialuit Settlement Region (ISR). Given the likely occurrence of similar types of developments in the Mackenzie Delta region should the Mackenzie Gas Project proceed, the Environmental Studies Research Fund (ESRF) commissioned a retrospective assessment of the Ikhil Project in regard to the regulatory process, the environmental assessment and public consultation and involvement. The objective of the study was to determine the strengths and weaknesses of the regulatory and environmental process for the Ikhil development and to identify improvements to the process, thereby improving efficiencies for future projects.</p>
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Who was Involved in the Review Process?

Purpose of conducting interviews	<p>Interviews were conducted in an effort to understand the regulatory and environmental processes required of the Project and to report on the strengths and weaknesses of the review process.</p>
Selection of interviewees	<p>A list of individuals with knowledge of the Project to be interviewed was compiled that included:</p> <ul style="list-style-type: none">• Federal regulators and agencies• Inuvialuit organizations (e.g., Environmental Impact Screening Committee (EISC), Inuvialuit Game Council, Joint Secretariat, Fisheries Joint Management Committee, Wildlife Management Advisory Council (North Slope), Wildlife Management Advisory Council (NWT), Inuvialuit Land Administration)• Government of the Northwest Territories• Community organizations (e.g., Hunters and Trappers Committees, Community Corporations)• former staff of the Inuvialuit Petroleum Corporation• consultants to the Inuvialuit Petroleum Corporation (North of 60 Engineering Ltd., Golder Associates)• knowledgeable individuals in the Inuvik area (e.g., former Mayor of Inuvik, media)

What was Assessed?

Focus of assessment	<p>Aspects of the regulatory review and approvals process that were addressed in this review include:</p> <ul style="list-style-type: none">• regulatory requirements for environmental approvals• other permitting requirements• associated timelines• review process for the Project• regulatory approvals and conditions• post-approval activities <p>Aspects of the environmental assessment process that were considered in this review include:</p> <ul style="list-style-type: none">• the assessment methodology• accuracy of the impact predictions (i.e., predicted effects vs. observed effects)• community involvement and consultation• use of Traditional Knowledge• environmental management and mitigation plans• effectiveness of environmental management and mitigation plans• approach for monitoring• effectiveness of the monitoring programs
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Did the Review Find Lessons of Value for Future Projects?

General Overview	<p>Based on responses from a number of individuals who were involved with the regulatory review of the Ikhil Project during 1995-1997, the majority of the individuals interviewed felt that the regulatory process worked well and that the Project Descriptions filed with the EISC and National Energy Board (NEB) were adequate for the requirements of both processes and the regulatory climate of the day.</p>
Recommendations	<p>The following recommendations are derived from both the Ikhil project experience as well as from other northern oil and gas projects.</p> <ul style="list-style-type: none">• Future projects should follow processes such as early and consistent community consultation, ready availability of Project representatives to regulators and the community, willingness to complete necessary field surveys, and sharing of information with the communities and regulators, to build trust in the community with respect to the Project and the integrity of the proponent.• Joint Secretariat, the Canadian Environmental Assessment Agency (CEAA) and other federal agencies (i.e., Indian and Northern Affairs Canada (INAC), Department of Fisheries and Oceans (DFO), Environment Canada (EC)) should meet to develop and agree on a harmonized process for both screening and more detailed reviews and should include:<ul style="list-style-type: none">– the setting of maximum timelines for specific stages of the federal regulatory review process– a process for development, review and finalization of Terms of Reference for more detailed assessments– clarification on the environmental review process for trans-boundary projects or trans-boundary effects that trigger the Mackenzie Valley Land and Water Board process and/or the Gwich'in Land and Water Board process• guidelines should be developed to assist project proponents in determining an approach for collection and use of Traditional Knowledge in the review process• to improve the assessment and understanding of cumulative effects of

- development, the EISC should develop and maintain a regional database on industrial and human activities and environmental resources
- the EISC should establish a public registry of all projects under review and information associated with these projects

Did the Review Find Lessons of Value for Future Projects? (cont'd.)

- the Inuvialuit and the federal government should develop joint guidelines for the use and decommissioning of sumps, as well as the handling of drilling and production wastes for both onshore and offshore oil and gas developments
- environmental inspection and monitoring should be required for other production and pipeline transportation projects in the region until potential environmental effects of pipelines on the tundra and taiga ecosystems are better understood and mitigation measures are proven
- environmental management plans should be developed as a condition of project approval
- routine inspections of the pipeline Right-of-Way (ROW) should include an evaluation of environmental parameters as well as pipeline integrity, especially during the first several years of operations
- project proponents should be responsible for providing regulators, relevant federal and territorial agencies, Inuvialuit organizations and communities with regular updates on the project, environmental issues and remediation throughout the construction and operational phases of the project. These organizations and communities should also have an opportunity to provide comments on mitigation success and project operations
- administration of all hydrocarbon production should be clearly assigned to either the Inuvialuit Regional Corporation or the federal government as appropriate, whether it be other 3rd party rights on the Inuvialuit private lands, or in negotiating future land claim agreements



Résumé

Nature du rapport

Éléments	<p>Cette étude de cas avait pour but de cerner, pour les besoins de futurs projets de mise en valeur des hydrocarbures dans le delta du Mackenzie, les grandes leçons pertinentes en matière d'efficacité et d'efficience des processus d'examen et d'approbation réglementaires ainsi que d'évaluation environnementale.</p> <p>L'objectif premier était de répertorier les importants points forts et points faibles du processus d'évaluation environnementale, du processus d'examen réglementaire et d'octroi de permis et des activités de suivi (p. ex., la surveillance post-construction et la planification des mesures de protection). Il n'était pas prévu d'inclure une analyse des aspects techniques détaillés des données environnementales de base.</p>
Lieu	Projet de mise en valeur de gaz Ikhil, Inuvik (T.N.-O.)
Promoteur	Inuvialuit Petroleum Corporation

Pourquoi effectuer cet examen?

Fonds pour l'étude de l'environnement	<p>Le complexe de production et de transport d'hydrocarbures Ikhil est actuellement le seul dans la Région désignée des Inuvialuit (RDI). Étant donné la probabilité de projets de mise en valeur semblables dans le delta du Mackenzie si le projet gazier Mackenzie va de l'avant, le Fonds pour l'étude de l'environnement (FÉE) a commandé une évaluation rétrospective du projet Ikhil portant sur le processus de réglementation, l'évaluation environnementale ainsi que la consultation du public et sa participation. L'examen visait à déterminer les points forts et les points faibles du processus de réglementation et d'évaluation environnementale du projet Ikhil et à établir de quelle façon ce processus pourrait être amélioré pour que les projets futurs soient plus efficaces.</p>
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Qui a participé à l'examen?

But visé par les entrevues	<p>Comprendre les processus de réglementation et d'évaluation environnementale requis pour le projet et faire rapport de leurs points forts et points faibles.</p>
Sélection des répondants	<p>On a dressé une liste de personnes qui connaissaient le projet, à titre individuel ou de représentant des organisations suivantes :</p> <ul style="list-style-type: none">• Organismes de réglementation et agences du gouvernement fédéral• Organisations Inuvialuit (p. ex., le Comité d'étude des répercussions environnementales (CÉRE), le Conseil de gestion du gibier, le Secrétariat mixte, le Comité mixte de gestion de la pêche, le Comité consultatif de la gestion de la faune (versant nord), le Conseil consultatif de la gestion de la faune (T.N.-O.), la Commission Inuvialuit d'administration des terres)• Gouvernement des Territoires du Nord-Ouest• Organisations communautaires (p. ex., comités de chasseurs et trappeurs, sociétés communautaires)• Anciens employés de la Inuvialuit Petroleum Corporation• Consultants auprès de la Inuvialuit Petroleum Corporation (North of 60 Engineering Ltd., Golder Associates)• Personnes averties résidant à Inuvik ou dans la région (p. ex., le maire sortant d'Inuvik, journalistes)

Quels aspects ont été évalués?

Cibles de l'examen

Les aspects du processus d'examen réglementaire et d'approbation pris en compte sont les suivants :

- exigences réglementaire concernant les approbations en matière d'environnement
- autres exigences d'octroi de permis
- délais
- processus d'examen du projet
- approbations et conditions réglementaires
- activités postérieures à l'approbation

Les aspects du processus d'évaluation environnementale pris en compte sont les suivants :

- méthodologie de l'évaluation
- justesse des prévisions sur les effets (c.-à-d. les effets prévus par rapport aux effets observés)
- consultation et participation des collectivités
- usage des connaissances traditionnelles
- plans de gestion de l'environnement et d'atténuation
- efficacité des plans de gestion de l'environnement et d'atténuation
- démarche de surveillance
- efficacité des programmes de surveillance

L'examen a-t-il permis de tirer des leçons importantes pour les projets futurs?

Aperçu général

La majorité des personnes interviewées qui ont participé à l'examen réglementaire du projet Ikhil de 1995 à 1997 étaient d'avis que le processus de réglementation avait bien fonctionné et que les descriptions de projet déposées après du CÉRE et de l'Office national de l'énergie (ONÉ) étaient adéquates pour les besoins des deux processus et du contexte de réglementation qui avait cours à ce moment-là.

Les recommandations suivantes sont le fruit de l'expérience acquise dans le cadre du projet Ikhil et d'autres projets pétroliers et gaziers dans le Nord.

Recommandations

- Pour les projets futurs, prévoir entre autres des consultations communautaires cohérentes dès le début, la disponibilité des représentants du projet pour répondre aux questions des organismes de réglementation et les collectivités, la volonté de réaliser les études sur le terrain nécessaires, ainsi que le partage d'information avec les collectivités et les organismes de réglementation pour créer un climat de confiance au sein des collectivités pour ce qui est du projet et de l'intégrité du promoteur.
- Le Secrétariat mixte, l'Agence d'évaluation environnementale (ACÉE) et les autres instances fédérales (Affaires indiennes et du Nord Canada, Pêches et Océans et Environnement Canada) devraient se réunir afin d'élaborer et d'adopter un processus harmonisé pour l'examen préalable et les examens plus détaillés qui comprendrait ce qui suit :
 - l'établissement de délais maximaux pour la réalisation des étapes spécifiques du processus d'examen réglementaire fédéral
 - un processus d'élaboration, d'examen et de finalisation d'un mandat pour les évaluations plus détaillées
 - la clarification du processus d'examen environnemental des projets ou effets transfrontaliers qui déclenchent le processus d'examen de l'Office des terres et des eaux de la vallée du Mackenzie et/ou celui de l'Office gwich'in des

terres et des eaux

- Des lignes directrices devraient être élaborées à l'intention des promoteurs de projets pour qu'il soit mieux en mesure de déterminer la démarche qui convient en matière de compilation et d'utilisation des connaissances traditionnelles au cours du processus d'examen.
- Afin de mieux comprendre et évaluer les effets cumulatifs d'un projet de mise en valeur, le CÉRE devrait créer et maintenir une base de données régionale sur les activités industrielles et humaines de même que les ressources environnementales.
- Le CÉRE devrait établir un registre public de tous les projets en cours d'examen et de l'information pertinente

L'examen a-t-il permis de tirer des leçons importantes pour les projets futurs? (suite)

- Les Inuvialuit et le gouvernement fédéral devraient élaborer des lignes directrices conjointes concernant l'utilisation et la mise hors service de bassins à boue de même que la manutention des déchets de forage et de production, tant pour les projets d'hydrocarbures côtiers qu'extracôtiers.
- L'inspection et la surveillance environnementales devraient être obligatoires pour les autres projets de production et de transport pipelinier dans la région jusqu'à ce que les effets environnementaux éventuels des pipelines sur les écosystèmes de la toundra et de la forêt boréale soient mieux compris et que les mesures d'atténuation aient été jugées efficaces.
- L'élaboration de plans de gestion environnementale devrait constituer une condition d'approbation d'un projet.
- Les inspections régulières de l'emprise du pipeline devraient inclure une évaluation des paramètres environnementaux et de l'intégrité du pipeline, surtout au cours des premières années d'exploitation.
- Les promoteurs devraient être responsables de présenter des mises à jour régulières sur leur projet, les enjeux environnementaux et les mesures d'atténuation aux organismes de réglementation, aux agences fédérales et territoriales pertinentes ainsi qu'aux organisations et collectivités Inuvialuit, pendant toute la durée des travaux de construction et de l'exploitation. Ces organisations et collectivités devraient également avoir l'occasion de faire part de leurs commentaires sur le succès des mesures d'atténuation et l'exploitation du projet.
- L'administration de toute la production d'hydrocarbures devrait être clairement assignée soit à la Inuvialuit Regional Corporation, soit au gouvernement fédéral, selon ce qui convient, qu'il s'agisse des droits des tierces parties sur les terres privées des Inuvialuit ou des négociations sur des revendications territoriales futures.



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1 Introduction

1.1 Background

The Inuvialuit Petroleum Corporation initiated the environmental permitting process for the Ikhil Gas Development and Pipeline (the Project) in 1995 to provide natural gas to the Town of Inuvik. Wells were drilled during the winter of 1997/98 with construction of the pipeline and production facility the following winter (1998/99).

The Ikhil well site, located 50 km north of Inuvik in the Caribou Hills, consists of two producing gas wells and associated feeder lines leading to a small gas processing plant. Natural gas is transported to Inuvik via a 50 km long 120 mm pipeline. The pipeline is buried except for the crossing at Douglas Creek where the pipeline crosses the creek above ground.

An application for the Ikhil Gas Development and Pipeline was prepared by Golder Associates Ltd. on behalf of the Inuvialuit Petroleum Corporation (IPC) for submission to the Inuvialuit Environmental Impact Screening Committee (EISC) (Golder 1997a).

While substantial seismic and exploration drilling activities occurred in the Mackenzie Delta during the 1970s and 1980s, the Ikhil Gas Development and Pipeline is currently the only producing hydrocarbon project in the Mackenzie Delta region. Further, it is the only operating hydrocarbon production project in the region that has been subject to the Inuvialuit and federal assessment and approval process as described in the Inuvialuit Final Agreement.

A comprehensive review of the lessons learned in regard to pipeline engineering and design, pipeline construction and maintenance was completed by North of 60 Engineering Ltd. for the Mackenzie Gas Project (McDougall 2004). The report provides a detailed background on the design and construction of the Ikhil Project, as well as an analysis of approach for contracting, construction, restoration, and operations and recommendations for alternative approaches for future pipelines. The report also includes a brief overview of the regulatory approval process for the pipeline.

In light of the renewed interest in hydrocarbon exploration and development in the Mackenzie Delta region in the past five to six years, as well as the certainty for growth in hydrocarbon production in the Delta region should the Mackenzie Gas Pipeline proceed, the Environmental Studies Research Fund (ESRF) identified the Ikhil Gas Development and Pipeline as a useful case study regarding the environmental assessment process and the regulatory review and approvals process for northern pipelines.

1.2 Objectives

The objective of the Ikhil Case Study is to identify important lessons learned of relevance to future hydrocarbon development within the Mackenzie Delta that relate to the effectiveness and efficiency of the regulatory review and approvals process and the environmental assessment process.

Aspects of the regulatory review and approvals process that were addressed in this case study include:

- Regulatory requirements for environmental approvals.
- Other permitting.
- Associated timelines.
- Review process for the Project.
- Regulatory approvals and conditions.
- Post-approval activities.

Aspects of the environmental assessment process that were considered in this case study include:

- The assessment methodology.
- Accuracy of the impact predictions (i.e., predicted effects vs. observed effects).
- Community involvement and consultation.
- Use of Traditional Knowledge.
- Environmental management and mitigation plans.
- Effectiveness of environmental management and mitigation plans.
- Approach for monitoring.
- Effectiveness of the monitoring programs.

The focus of the review was to identify the important strengths and weaknesses of the environmental assessment process, the regulatory review and permitting process, and follow-up activities (e.g., post-construction monitoring and protection planning). The review did not include detailed technical reviews of the baseline environmental data.



2 Overview of the Ikhil Project

2.1 Project Description

The regulatory process for the Project was initiated in 1995 by the Inuvialuit Petroleum Corporation to address the need for a clean and cost-effective energy alternative for the community of Inuvik in the Northwest Territories. The Project included the development of the existing K-35 Ikhil sweet gas well and two additional shallow wells (J-35 and an unnamed dry well), two sumps associated with the K-35 and J-35 wells, a small production facility and a 50 km long 120 mm pipeline from the production facility to a pressure regulation and metering facility near the Northwest Territories Power Corporation (NTCP) power plant in Inuvik (Figure 2-1). With the exception of the Project facilities within the Town of Inuvik, the Project was constructed entirely within Inuvialuit Private 7(1)a Lands.

North of 60 Engineering was retained by the Inuvialuit Petroleum Corporation to manage the Project. North of 60 Engineering Ltd. contracted Golder Associates Ltd. (Golder) to conduct an environmental assessment of the J-35 and K-35 well sites, and the pipeline right-of-way (ROW). North of 60 Engineering Ltd. was responsible for the Project design and oversaw the construction of the Ikhil pipeline.

The environmental assessment and regulatory review was conducted in 1997 and 1998. During the summer of 1997, an ecological and archaeological survey was completed along the pipeline right of way (ROW) and in the vicinity of the two well sites. Construction on the pipeline began with the clearing of the ROW in October 1998. The pipeline was completed in April 1999 and gas came into service on May 16, 1999.

2.2 Regulatory Approval Process

From a regulatory perspective, the Project was subject to parallel approvals from the Inuvialuit Settlement Region (ISR) under the direction of the Environmental Impact Screening Committee (EISC) and a federally-regulated Canadian Environmental Assessment Act (*CEA Act*) screening under the auspices of the National Energy Board (NEB). The Project also required approval from key stakeholders and regulators. Consultation was started in June 1995.

Table 2-1 outlines the regulatory approvals that were required for the Ikhil pipeline.

Figure 2 1 Location of the Ikhil Project, Northwest Territories

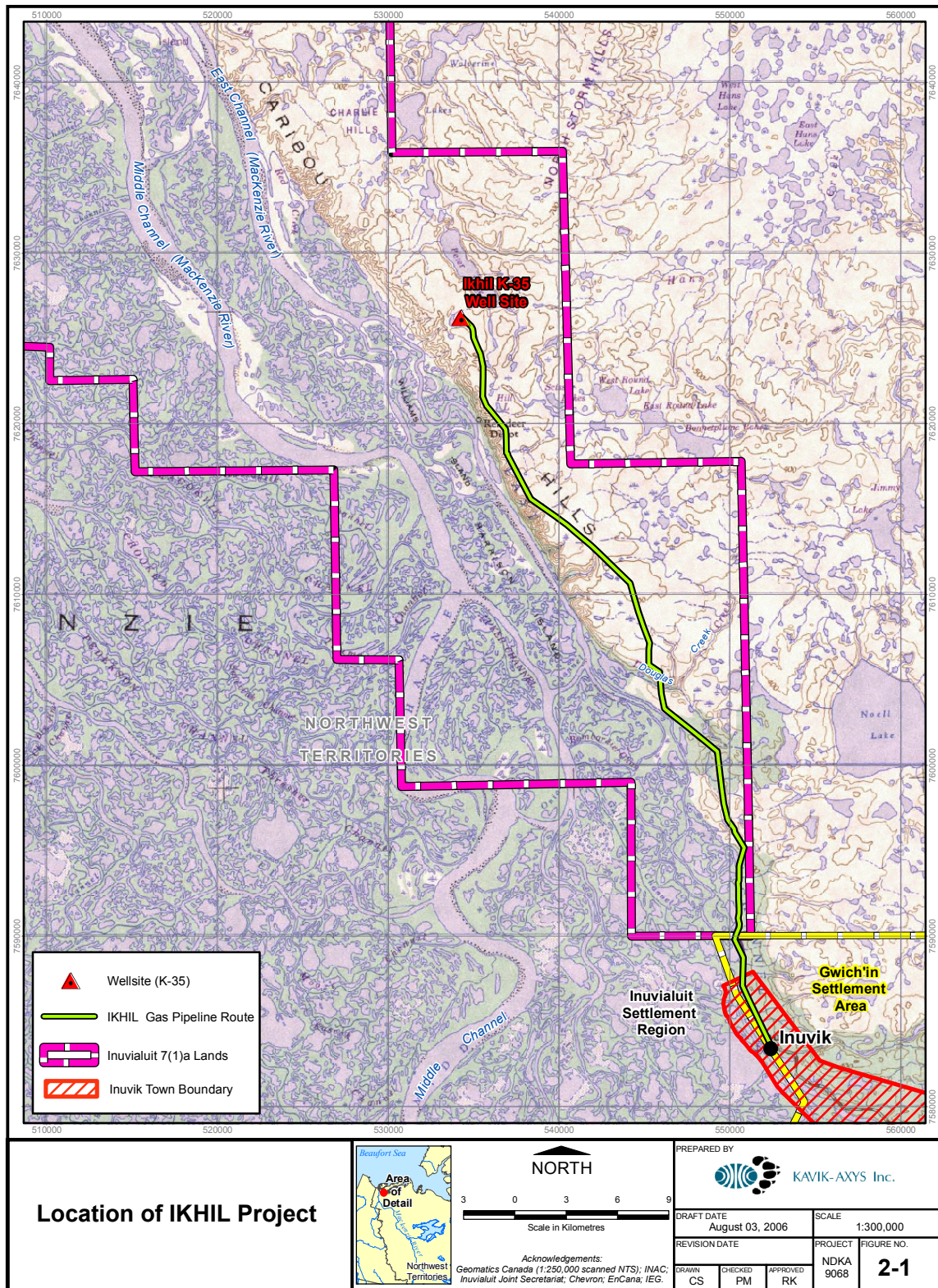


Table 2-1 Regulatory Approvals for the Ikhil Project

Organization	Approval Required
Inuvialuit Environmental Impact Screening Committee (EISC)	Project decision, <i>Inuvialuit Final Agreement</i>
National Energy Board (NEB)	<i>CEA Act</i> Approval Development Plan Approval Commercial Discovery Licence Authority to Drill A Well (x2) Authority to Build a Pipeline
Department of Fisheries and Oceans	Licence to Obtain Fish for Scientific Purposes
Aurora Research Institute	NWT Scientific Research Licence
Prince of Wales Northern Heritage Centre	NWT Archaeologist's Permit
Northwest Territories Resources, Wildlife and Economic Development (now Environment and Natural Resources)	NWT Wildlife Research Permit
Indian and Northern Affairs Canada (INAC)	Land Use Permit (withdrawn)
Inuvialuit Regional Corporation	Project Approval
Inuvialuit Land Administration	Land Use Permit
Inuvik and Tuktoyaktuk Elders Committee, Community Corporation and Hunters and Trappers Committee	Project Approval Wildlife Compensation Agreement
Town of Inuvik	Permission to Build a Pipeline
NWT Water Board	Type B Water Licence Permission to Cross a Waterway.
Transport Canada	Navigable Water Authorization (Douglas Creek)

2.2.1 Project Submissions and Regulatory Reviews

Golder submitted an initial Project Description for EISC approval under the Inuvialuit Final Agreement (Golder 1997a). The Project Description included a description of the one existing well at Ikhil K-35 plus an additional two wells; two sump sites for drilling fluids; tie-in facility; and a 50 km buried pipeline from Ikhil to Inuvik, NT. The submission was received by the EISC on June 20, 1997 and the EISC issued a decision on the Project on July 30, 1997. The Project Description submitted to the EISC was a desktop review of valued ecological components. As part of this desktop review, data gaps for fisheries, terrain, vegetation, wildlife, and archaeology were identified. A commitment to conduct field work was included within the Project Description submission.

Fisheries, vegetation, wildlife and archaeology surveys were conducted by Golder between July 31 and August 3, 1997. A technical report based on the findings of these surveys was submitted to IPC and the NEB in late August (Golder 1997b) with an archaeological impact assessment addressed to IPC in October 1997 (Golder 1997c).

Golder then prepared a Project Description submission to the NEB for *CEA Act* screening on August 1, 1997 (Golder 1997d). The NEB submission incorporated the findings of the fisheries, vegetation, wildlife and archaeological field surveys, as well as additional

comments from community consultation. The Project received approval from the federal Minister of the Environment on December 23, 1997.

On November 5, 1997, Golder submitted a Project Description to the EISC for a route change along the Inuvik – Ikhil corridor (Golder 1997e). This Project Description was withdrawn from review on December 5, 1997 because of a decision to conduct all transportation to the Ikhil well site on Inuvialuit 7(1)a Private Lands.

A terrain analysis was conducted by Nixxon Geotech Ltd. (Nixxon) in June 1998 prior to pipeline construction. Nixxon (1998) identified areas of instability on the slopes leading to the Douglas Creek crossing. They suggested an elevated overland crossing rather than the proposed buried crossing that was considered in both the Project Descriptions for the EISC and the NEB.

2.2.2 Chronology of Project Approvals and Permitting

Table 2-2 provides a chronology of the various activities associated with Project approvals and permitting. Key issues identified during each of these activities are also described. Meetings with community organizations including Hunter and Trapper Committees and Community Corporations are also listed.

Table 2-2 Chronology of Activities Associated with Project Approvals and Permitting

Comments, Approvals and Permitting	Date Issued	Organization	Comment/Conditions
Project Description Comments ¹	July 2, 1997	Tuktoyaktuk HTC	<ul style="list-style-type: none"> No concerns.
Project Description Comments ¹	July 24, 1997	FJMC	<ul style="list-style-type: none"> Concerns with lakes and creeks: Sediment contamination Fish and muskrat habitat Water quality for residence Recommend fish survey and use of traditional knowledge.
Wildlife Research Permit WL001552	July 25, 1997	NWT Resources, Wildlife and Economic Development	<ul style="list-style-type: none"> Authorization to conduct environmental baseline work on wildlife in the Ikhil Gas Project area.
Project Description Comments ¹	July 28, 1997	Aklavik HTC	<ul style="list-style-type: none"> Use of Inuvialuit employees.
Project Description Approval ¹	July 31, 1997	EISC	<ul style="list-style-type: none"> No significant impact on the environment. Commitments included: <ul style="list-style-type: none"> Conduct wildlife, vegetation and archaeological survey Consult with cabin owners prior to construction Recommend a buried line crossing at Douglas Creek Bear awareness Wildlife compensation.
Project Description Comments ²	Nov 6, 1997	Inuvik HTC	<ul style="list-style-type: none"> Use of wildlife monitor.
Project Description Comments ²	Nov 10, 1997	Inuvialuit Game Council	<ul style="list-style-type: none"> No concern.

Table 2-2 Chronology of Activities Associated with Project Approvals and Permitting (cont'd)

Comments, Approvals and Permitting	Date Issued	Organization	Comment/Conditions
Project Description Comments ²	Nov 12, 1997	Canadian Wildlife Service	<ul style="list-style-type: none"> No concern to migratory birds or habitat.
Project Description Comments ²	Nov 27, 1997	Tuktoyaktuk HTC	<ul style="list-style-type: none"> No concern.
Project Description Withdrawn ² Land Use Permit Withdrawn	Dec 5, 1997	IPC	<ul style="list-style-type: none"> Alternate route through Inuvialuit Private Lands chosen.
CEA Act Approval ³	Dec 23, 1997	NEB	<ul style="list-style-type: none"> No significant adverse environmental effects. Conditions: <ul style="list-style-type: none"> Adherence to mitigation measures described within the Project Description.
Class B water licence. N3L1-1727	Oct 8, 1998	NWT Water Board	<ul style="list-style-type: none"> No negative impact on environment.
Restoration Plan for Water Licence Approval	April 2, 1998	DFO	<ul style="list-style-type: none"> Concerns: <ul style="list-style-type: none"> Provide no timeline for sump monitoring program. No comment on sump water analysis.
Abandonment and Restoration Plan – Water Licence N3L1-1727	Mar 26, 1999	INAC – Water Resources	<ul style="list-style-type: none"> Restoration plans for: <ul style="list-style-type: none"> Temporary access road ROW Water intake facilities Pipeline ditch restoration Stream crossing Camp Well completion fluids Pipeline pressure testing fluids
Emergency Response Plan – Water Licence N3L1-1727	Feb 2, 1999	INAC – Water Resources	<ul style="list-style-type: none"> Plan submission.
Bridge Installation at Douglas Creek	April 21, 1999	Inuvialuit Land Administration	<ul style="list-style-type: none"> Approval for snow machine bridge crossing at Douglas Creek.
<p>NOTES:</p> <p>¹ The Ikhil Gas Development to Supply Gas to the Town of Inuvik – EISC Project Description (Golder 1997a)</p> <p>² Temporary Overland Access Route from Inuvik to Ikhil, Inuvialuit Petroleum Corporation – EISC Project Description (Golder 1997e)</p> <p>³ Environmental Impact Assessment for the Ikhil Gas Development to Supply Natural Gas to the Town of Inuvik – CEA Act/NEB Project Description (Golder 1997b)</p>			

2.2.3 Monitoring

A monitoring program for soil settling along the pipeline ROW was suggested in both the EISC and NEB Project Descriptions. No other monitoring was proposed or completed, other than routine pipeline inspections (McDougall 2004).

Remedial work on the backfill mound was required at the end of the first thaw season in some locations. The backfill mound was revegetated at the end of the first and second seasons as recommend in the Project Description (Golder 1997 a, b).

2.3 Environmental Assessment Process

The environmental assessment process for the Ikhil Project was conducted under a parallel screening process by both the EISC under the Inuvialuit Final Agreement and the NEB under the *CEA Act*. As noted above, the Project Description was submitted to the EISC for review on June 20, 1997 (Golder 1997a) and a decision was issued by the EISC on July 31, 1997. The Project Description for the *CEA Act* screening was submitted on August 1, 1997 (Golder 1997d). A decision on the *CEA Act* screening was made on December 23, 1997.

2.3.1 Assessment Approach and Methodology

The EISC and *CEA Act*/NEB Project Descriptions followed similar assessment approaches and methodologies. The structure of both reports followed the structure recommended by the EISC.

The majority of information gathered for the reports was conducted using a desktop review for valued components (VC). Broadly speaking, VCs included physical and cultural elements with potential effects of the Project outlined for each VC. However, as part of this review, Golder identified a number of data gaps for fisheries, terrain, vegetation, wildlife and archaeology that would constrain mitigation planning for the Project. A description of the proposed field surveys was provided as part of the EISC submission.

Following completion of the field surveys in July 1997, findings were presented in a technical report (Golder 1997b). Results of the field surveys largely supported the conclusions of the desktop review included in the Project Description submitted to the EISC. Results of the field surveys were included in the environmental assessment for the *CEA Act* screening to provide a more complete assessment of potential effects on VCs.

2.3.2 Use of Traditional Knowledge

Traditional knowledge was considered in both the EISC and the *CEA Act* submissions. Traditional knowledge was based on a review of the relevant community conservation plans (CCPs), as well as feedback by community members during the various community consultation activities for the Project. Where appropriate, the Project implemented mitigation measures based on the CCPs and community comment. No formal traditional knowledge study was conducted for the Ikhil Project.

2.3.3 Determinations by the EISC and NEB

The EISC and NEB made separate determinations that the Project would result in no significant impact provided that the mitigation measures outlined within the Project Description was implemented as planned. The Project was not subjected to additional requirements or amendments by either regulator. Based on these determinations, the Federal Minister of Environment issued an environmental approval for the Project.

2.4 Public Involvement and Consultation

A number of community consultation events were completed in conjunction with the regulatory applications and permitting for the Ikhil test wells and pipeline. The first of

these concerned discussions on the initial Ikhil K-35 well test in June 1995. In total, 20 meetings were hosted by the proponent in the Inuvik area from June 1995 through June 1997. The Hunters and Trappers Committees in Tuktoyaktuk and Aklavik also provided comments on the Project.

Table 2-3 Community Consultation Activities for the Ikhil Test Wells and Pipeline in the Inuvik Area

Date	Group	Purpose
June 16, 1995	ICC	Overview
August 7, 1995	Mayor of Inuvik	Overview
November 28, 1995	ICC	Overview
January 9, 1996	HTC	Overview plus focus on extended well test
January 10, 1996	ILA	Overview plus focus on extended well test
January 16, 1996	ICC	Overview
March 25, 1996	ICC	Overview
April 10, 1996	ILA	Overview
September 10, 1996	ICC	Overview
December 13, 1996	ILA	Overview
January 21, 1997	ICC/HTC	Extended flow test
February 2, 1997	Mayor of Inuvik	Overview
February 14, 1997	ILA	Overview
February 25, 1997	EISC	Overview
March 26, 1997	ICC (AGM)	Overview
April 2, 1997	Inuvik. Reg. Youth Conf.	Overview
April 23, 1997	Town of Inuvik	Overview
June 1, 1997	ILA	Project review
June 22, 1997	Inuvik HTC	Project discussion
June 29, 1997	Town of Inuvik	Overview
NOTES: ICC – Inuvik Community Corporation ILA – Inuvialuit Land Administration HTC – Hunters and Trappers Committee EISC – Environmental Impact Screening Committee		
SOURCE: Golder 1997c		

3 Approach and Methodology

3.1 Review of Background Materials

Various documents on the regulatory review process and environmental assessment for the Ikhil Project were reviewed. These included:

- Submissions by the Inuvialuit Petroleum Corporation to the EISC and NEB (e.g., Golder 1997a, b, c, d; Nixxon 1998).
- Publicly available information on the Project on file at the Joint Secretariat in Inuvik.
- Publicly available information on the Project on file at the NEB.
- A recent review of the engineering aspects of the Ikhil Project by North of 60 Engineering Ltd. (McDougal 2004).

3.2 Identification of Themes

Based on the above-noted information and the professional experience of the review team, the following themes were identified as a framework for the interviews of individuals that were involved in some way with the regulatory review and environmental approvals and permitting for the Ikhil Project. The themes identified were:

- Regulatory review and approvals process (process followed, constraints, possible improvements to process, approvals and conditions).
- Scoping of the assessment (e.g., identification of issues).
- Baseline information (e.g., adequacy of data, use of traditional knowledge).
- Environmental assessment approach and methods.
- Environmental management and mitigation (e.g., methods proposed, implementation, effectiveness).
- Monitoring (what was proposed, what was implemented, adequacy of approach).
- Community consultation and involvement (e.g., approach, adequacy, effectiveness, role of media).

The regulatory review and approvals process is discussed in Section 4. The environmental assessment (scoping, baseline, assessment methods, mitigation, monitoring) is discussed in Section 5. Community consultation and involvement is discussed in Section 6.

3.3 Interviews

3.3.1 Selection of Interviewees

A list of individuals with knowledge of the Project to be interviewed was compiled that included:

- Federal regulators and agencies.
- Inuvialuit organizations (e.g., EISC, Inuvialuit Game Council, Joint Secretariat, Fisheries Joint Management Committee, Wildlife Management Advisory Council (North Slope), Wildlife Management Advisory Council (NWT), Inuvialuit Land Administration).
- Government of the Northwest Territories.
- Community organizations (e.g., Hunters and Trappers Committees, Community Corporations).
- former staff of the Inuvialuit Petroleum Corporation.
- consultants to the Inuvialuit Petroleum Corporation (North of 60 Engineering Ltd., Golder Associates).
- knowledgeable individuals in the Inuvik area (e.g., former Mayor of Inuvik, media).

A list of the individual selected for interviews is provided in Appendix A. While most of the identified individuals were contacted, several could not be located. A small number also chose not to participate in interviews or felt that they had insufficient involvement in the Ikhil Project to effectively contribute to the case study. One individual indicated that they would only participate in an interview if they could be reimbursed for their time (as there was no budget for this, the interview was not undertaken).

3.3.2 Interview Process

A questionnaire was developed to guide each of the interviews (Appendix B). The National Energy Board, on behalf of the ESRF, sent a letter to each of the potential interviewees, requesting their cooperation in review of the Ikhil Project. Individuals that agreed to be interviewed were sent a copy of the questionnaire in advance of the interview. Each interviewee was asked to sign a consent form. They were also asked if information from the interview could be attributed to them.

Interviews were conducted during July, November and December 2006. Interviews during July 2006 focused on federal regulators and agencies, the Government of the Northwest Territories, and former staff and consultants for the Inuvialuit Petroleum Corporation. A number of individuals in Inuvialuit organizations were also interviewed.

Because of the lack of availability of many of the interviewees in the Inuvik area during July to September, these interviews were delayed until Fall 2006. Due to time conflicts with the interviewer in Inuvik, the interviews could not be completed until November to early December 2006.

Approximately half of the completed interviews were conducted in person. The remainder were conducted by phone.

3.3.3 Analysis of Information from Interviews

Information from each interview was entered into a database using the themes described above (Section 3.2). Information for each theme was then reviewed by three senior northern practitioners (J. Green, C. Edey, M. Fabijan) to identify strengths and weaknesses of the Ikhil environmental approvals process for each theme or sub-theme. These strengths and weaknesses were then assessed in relation to current regulations, guidelines and accepted practice. If appropriate modifications to the regulatory process, environmental assessment process and/or the public consultation process had not already occurred to address these strengths and weaknesses, recommendations were developed by the senior practitioners to maximize strengths and minimize weaknesses. Recommendations from the review are highlighted in boxes in the following text. Where changes had already been made by regulators, practitioners and/or proponents, these changes were also identified. A summary of conclusions and recommendations is provided in Section 7.



4 Regulatory Review and Approvals Process

4.1 Overview and Context

The environmental assessment process for the Ikhil Project was conducted under a parallel screening process by both the EISC under the Inuvialuit Final Agreement and the NEB under the CEA Act. The Project Description was submitted to the EISC on June 20, 1997 (Golder 1997a) and a decision was issued by the EISC on July 31, 1997. The *CEA Act* screening was submitted to the NEB on August 1, 1997 (Golder 1997d), with a decision by the Federal Minister of the Environment on December 23, 1997.

As noted by many of the interviewees, the joint Inuvialuit – Federal environmental review process had been in place for approximately ten years at the time of the Project Description submission to the EISC. While the EISC process was well established and members of the EISC had considerable experience in screening of a wide range of industrial projects, this was the first pipeline project to be reviewed by the EISC. Previous screening focused largely on oil and gas exploration, test drilling, various land uses and transportation. Of note, a proposal for harvesting of driftwood lumber had been recently reviewed by the EISC and referred to the Environmental Impact Review Board (EIRB). Several interviewees felt that the EISC would also refer the Ikhil Project to an EIRB review given the type and scale of the Project, as well as the Project being the first production facility and transportation pipeline in the ISR. A number of interviewees commented that the Project was likely not referred because:

- The community consultation effort by the proponent and North of 60 Engineering.
- The ready availability of the Project Engineer (J. McDougal) to respond to information requests.
- The willingness of the proponent to complete field surveys.
- The subsequent sharing of this information with regulators and communities.

All of these measures helped to build trust in the community with respect to the Project.

Future projects should follow similar processes (e.g., early and consistent community consultation, ready availability of Project representatives to regulators and the community, willingness to complete necessary field surveys, sharing of information with the communities and regulators), to build trust in the community with respect to the Project and the integrity of the proponent.

The National Energy Board was the Responsible Authority (RA) under the CEA Act. Federal agencies (FAs) that also participated in the *CEA Act* screening included Environment Canada (EC), Department of Fisheries and Oceans (DFO), Indian and Northern Affairs Canada (INAC), and Transport Canada (TC). The Ikhil Project was the first project permitting of this type for the NEB in the Northwest Territories since the Norman Wells development. It was the first joint review for the NEB with the EISC.

The Government of the Northwest Territories was not directly involved in either the EISC screening or the *CEA Act* screening. Agencies such as the Department of Resources, Wildlife and Economic Development (RWED) did provide comment on the Project Description to the EISC. The Northwest Territories Water Board also reviewed and issued the water license for the Project.



A key consideration in evaluating the regulatory process for the Ikhil Project was that the joint review was the first such review involving the EISC and NEB in the Inuvialuit Settlement Region (ISR). As with the early stages of any process, lack of familiarity with the joint review process did lead to some inefficiencies. For example, while some information was shared between the EISC and the federal RA and FAs, mechanisms were not well established for such exchange. There also was a need for the proponent to file separate (while very similar) Project Descriptions to the EISC and the NEB. The environmental consultant for the Ikhil Project noted that, in several cases, he acted as a liaison between the EISC and NEB processes.

While some inefficiencies existed at the time of the review of the Ikhil Project, several interviewees noted that the EISC and NEB have now completed a large number of joint reviews and that the review process is much better harmonized (e.g., filing of a single Project Description). In the case of the review of the Devon Beaufort Sea Offshore Exploration Drilling Program (Devon 2004a, b), a harmonized regulatory review process was developed and adopted by the EISC and NEB to meet both the needs of the Inuvialuit Final agreement and a Comprehensive Study Review under *CEA Act*. This included jointly agreed upon Terms of Reference, joint meetings of the Joint Secretariat and NEB with the proponent and its consultants, and linkage of the EISC screening to specific regulatory steps for the NEB.

To facilitate efficient environmental reviews of future oil and gas production projects in the ISR, it is recommended that the Joint Secretariat, the CEA Agency, other federal agencies (i.e., INAC, DFO, EC) and the GNWT meet to develop and agree to formal harmonized processes for both screening and more detailed reviews (i.e., referrals to the EIRB, Comprehensive Studies).

A small portion of the original pipeline right-of-way transected Gwich'in lands outside of the Town of Inuvik. While the *Gwich'in Land Claim Settlement Act* (1992) had been promulgated, mechanisms for consideration of the Ikhil Project by the Gwich'in were not in place. Specifically, the Gwich'in Land and Water Board had not been established and no mechanisms existed to address concerns of the Gwich'in regarding the Ikhil Project (i.e., potential environmental effects of the Ikhil Project on Gwich'in lands, as well as the socio-economic effects of the Project on Gwich'in people).

Under the current regulatory regime, the Ikhil Project, as originally proposed (i.e., a part of the pipeline ROW crossed Gwich'in lands), would have triggered the Inuvialuit as well as the Gwich'in Land and Water Board and Mackenzie Valley Environmental Impact Review Board (MVEIRB) environmental review processes.

The Gwich'in Land and Water Board would address land use and water use issues, and determine if the proposed project conforms with the Gwich'in Land Use Plan (Gwich'in Land and Water Board, no date). The Gwich'in Land and Water Board may then issue Water Licenses with the approval of the Minister of Indian and Northern Affairs Canada. Land Use Permits are approved and issued by the Gwich'in Land and Water Board. If there is doubt about whether a project conforms with the Land Use Plan, the Board may refer the application to the Gwich'in Land Use Planning Board who will make a final determination on conformity.

The MVEIRB would conduct an environmental assessment of the Project and would make a determination on the environmental effects of the Project (Gwich'in Land and Water Board, no date). The Board can make recommendations to the Minister of Indian

and Northern Affairs that terms and conditions be placed on a permit or license or that the proposed project be referred to a detailed environmental impact review. The latter would be conducted by the MVEIRB. Present legislation also allows for the creation of joint panels if there are transboundary issues (i.e., beyond the Mackenzie Valley) or the project is considered of national concern.

Following expression of concerns by the Gwich'in, the pipeline alignment was modified to cross Inuvialuit lands and lands within the Town of Inuvik, exclusively.

For future projects that may result in joint triggers, it would be beneficial to have a formal harmonized review process for the Inuvialuit and Gwich'in environmental review processes. The latter would require harmonization of requirements of the Gwich'in Land and Water Board and the MVEIRB with the Inuvialuit process.

4.2 Regulatory Process

The regulatory process followed by the Ikhil Project was evaluated in terms of:

- efficiency
- effectiveness
- transparency and fairness

Each of these aspects are defined and discussed below.

4.2.1 Efficiency

Efficiency relates to the amount of time required for the review, both in terms of the time required to make a regulatory decision on a project, the adequacy of the time for regulators to complete the review of the application, and the adequacy of the time for stakeholders to obtain information and comment on the application.

As noted earlier, the environmental approvals for the Ikhil Project required approximately five months from the time of the first submission to the EISC and the issuance of the environmental approvals by the Federal Minister of the Environment. The EISC review required just over a month, while the *CEA Act* review required 4 months.

It was the opinion of most interviewees that the EISC and *CEA Act* processes went smoothly and were efficient. The EISC timeline followed the timelines set out in the EISC Guidelines (EISC 2004). Several interviewees noted that the efficiency of the EISC process reflected “an experienced process with experienced committee members and an experienced consulting team”.

One interviewee noted that the four month time frame for the environmental approvals under *CEA Act* is likely less than what might now be required, given the current *CEA Act* process and approvals for a Production License. These processes could be more complex than the process faced by the Ikhil Project and may require a longer (and less definable period of time for review. The lack of specific timelines for reviews under the *CEA Act* was noted by industry and other participants in the Five (5) Year Review of the *CEA Act*.

As noted in Section 4.1, there were some inefficiencies in the review process due to the need for the proponent to address two separate but parallel review processes and the lack of familiarity with information sharing at the time of the review. These issues have now largely been resolved under the current regulatory review process.

Overall, the regulatory review process met expectations relative to time efficiency and adequacy of time for review. However, given comments on the undefined nature of the approval timeline for Production Licenses, it is recommended that federal agencies establish set timelines for each of the specific stages of the CEA Act review process.

4.2.2 Effectiveness

Effectiveness relates to the identification and assessment of environmental and socio-economic issues, including identification of all important issues and the manner in which effects were assessed and managed.

The majority of the interviewees felt that the environmental assessment for the Project (Golder 1997a, d) did satisfactorily address all of the key issues, and that issues raised during the regulatory and community consultation activities were addressed.

Several interviewees noted that the EISC and *CEA Act* screening processes do not require the development of Terms of Reference. While this is common for screening level assessments, development of Terms of Reference should be required for more detailed reviews (e.g., EIRB hearings, a Comprehensive Study). Regulatory agencies and public stakeholders should have an opportunity to comment on the Terms of Reference prior to finalization.

One interviewee felt that cumulative effects are not being adequately addressed under the current EISC and *CEA Act* processes due to the lack of regional databases on industrial and human activities and environmental resources. These databases should be made available to the communities in the ISR to allow them to better understand the cumulative consequences of individual projects.

One interviewee noted that while the assessment met the information needs as outlined for the EISC and *CEA Act*, the broader issue of cumulative changes on the landscape and the effects of these changes on the socio-cultural well-being of the Inuvialuit were not adequately addressed.

Based on these comments it is recommended that:

- The EIRB and federal agencies agree on a process for development and review of Terms of Reference for more detailed assessments.
- The EISC develop and maintain a regional database on industrial and human activities and environmental resources that can be used by regulators and the public to more effectively address cumulative effects of development, including effects on the traditional lifestyles of the Inuvialuit.

4.2.3 Transparency and Fairness

Transparency and fairness refer to the ability of stakeholders to access information and provide comment on the Project.

For the time at which the review was conducted, most interviewees felt that the regulatory process for the Ikhil Project was open and transparent. This reflected the requirements of the EISC to engage communities in the decision-making process, as well as the effort by the proponent to inform communities about the Project. One interviewee noted that a web-based system should be employed by the EISC to post information

about project proposals. Currently, only federal agencies post information on project screenings and reviews.

Several interviewees representing federal agencies noted that much of the early consultation effort involved engineering professionals, largely from southern locations, in the consultation effort, and that environmental consultants were not engaged until the latter half of the consultation effort. While most interviewees felt that adequate consultation was completed (Section 6), it was suggested that communication of Project information should be done in a manner that is more easily understood by northern residents, and that environmental professionals be involved early in the consultation process. This is addressed in more detail in Section 6.

To improve the transparency of the regulatory review process, it is recommended that the EISC establish a public registry of all projects under review, including technical information and traditional knowledge of relevance to these projects. While a web-based registry, such as employed by many federal agencies, would be useful to some community members, communication of similar information by less technologically-reliant means (i.e., hard copy reports and maps, verbal communications) is also required for elders and other community members who may not have access to computers and the internet.

4.3 Follow-up and Monitoring

This section addresses the manner in which follow-up and monitoring activities were addressed in the regulatory review process. Discussion of the technical aspects of the follow-up and monitoring for the Ikhil Project is provided in Sections 5.

Many of the interviewees felt that there was inadequate follow-up and monitoring for the Ikhil Project. This likely occurred for a number of reasons:

- At the time, the EISC could only make a determination on the importance of the project effects and could not place conditions on their decision. Hence, the EISC had no authority to require or recommend follow-up or monitoring activities. They also have no authority to ensure that such activities occur or that additional mitigation is applied in the event of problems. Since 2004, the EISC has been able to include conditions..
- In 1997, the Inuvialuit Land Administration had just assumed responsibility for monitoring of projects such as the Ikhil Project. Some interviewees felt that there was wide variation in the skills of the ILA environmental monitors that were assigned to the Ikhil Project and that some monitors lacked adequate training and experience. As a result, environmental issues were not addressed as well or as efficiently as they might have been. Previous to this, environmental inspectors for INAC would have ensured that adequate follow-up and monitoring occurred.
- While environmental monitors were employed during the construction of the pipeline, the individuals doing this work had little or no training in environmental inspection and monitoring. Hence, results varied widely. Currently, Environmental Monitors are required to complete training through institutions such as the Aurora College.

As is discussed in more detail later in this review (Section 5.5), the major issue during construction and early operation was slope instability associated with the preparation of the ROW across Douglas Creek, and subsequent use of the ROW as a skidoo route by local residents. This was rectified by changing the pipeline design for the Douglas Creek crossing from a buried pipeline to an elevated pipeline, and by re-routing snowmobile use by community members away from the unstable slope.

The main issue identified by interviewees in regard to regulatory aspects of follow-up and monitoring was that the responsibility of federal agencies and Inuvialuit organizations for follow-up and monitoring were not well defined. Hence, there were no formal environmental monitoring activities during construction or early operations. While engineering inspections were conducted, several interviewees stated that these were not adequate to identify several of the resulting environmental problems (e.g., Douglas Creek, and debris and sedimentation issues in several small watercourses). As a result, some problems were not identified and remediated in a timely fashion.

To improve regulatory aspects related to follow-up and monitoring, it is recommended that:

- requirements for follow-up and environmental monitoring be considered in both the EISC and federal review processes.
- regulators ensure that follow-up and monitoring activities are completed, that appropriate remedial actions are implemented to address environmental concerns and the ILA is informed of activity status and progress.

4.4 Operations and Production

4.4.1 Administration of Hydrocarbon Projects and Revenues

Following the issuance of the environmental approvals, the Ikhil Project was subject to the requirements of *Canada Oil and Gas Operations Act (COGOA)* and the *Canada Petroleum Resources Act (CPRA)*. The *COGOA* provides for the technical regulation of oil and gas drilling and production in frontier lands with a focus on human safety and environmental regulation (e.g., waste management). It provides for the development of regulations concerning the design, safety, construction and installation, inspection, testing, monitoring, operation, maintenance and repair of installations used in the exploration for, development and production of oil and gas in frontier areas. The *CPRA* addresses the ownership of frontier oil and resources, including the administration of rights to explore for and produce petroleum, royalties and industrial benefits. For lands within the ISR, INAC is responsible for the administration of both acts.

Within INAC, the Northern Oil and Gas Branch is responsible for:

- Processing the Benefits Plan requirement for ministerial approval under *COGOA*.
- Processing the Order-in-Council for ministerial sign-off to send to the Governor-in-Council for consent to NEB approval of Part I of the Development Plan pursuant to *COGOA*.
- Issuance of Production Licence(s) pursuant to the *CPRA* and the IFA.

As noted by one interviewee, the oil and gas disposition for the Ikhil Project was unusual and is not likely to be repeated. Gulf Canada Resources was the holder of the Ikhil Significant Discovery Licence (SDL) when negotiators of the Western Arctic Land Claim Agreements allowed the Inuvialuit to select those lands as part of their land claim. While third party rights were protected, the Inuvialuit could have chosen to reach agreement with a third party to administer the rights. In this case, the Inuvialuit Petroleum Corporation purchased the SDL from Gulf Canada following the completion of the land claim. However, for some reason the Inuvialuit did not reach an agreement with its own Petroleum Corporation to take over the administration of the Production Licence. As a result, the Northern Oil and Gas Branch currently collects the royalties from the production of gas for the Ikhil Project. The monies remitted to Government are then sent back the Inuvialuit. As noted by this interviewee, the process is “not efficient and not without controversy”.

While the land ownership issue for the Ikhil Project was unusual, to avoid similar administrative and revenue issues with other production projects in the future, administration of all hydrocarbon production should be clearly assigned to either the Inuvialuit Regional Corporation or the federal government.

4.4.2 Follow-up with Regulatory Agencies

Several of the interviewees that had been, or are currently, involved as regulators noted the absence of shared communications during and following construction. Some interviewees mentioned that once their part of the review and approvals were complete, they were no longer informed as to what progress was made. It was recommended that the proponent should be responsible for providing updates on project construction and operation phases to interested regulators on a regular (i.e., annual) basis. As discussed in Section 6 in regard to public consultation, a number of interviewees also noted an absence of follow-up information on the Project to communities during construction and operations. This recommendation also reinforces the suggestion for the development of a shared database for projects that would be available to regulators and the public.

It is recommended that project proponents be responsible for providing regulators, relevant federal and territorial agencies, Inuvialuit organizations and communities with regular updates on the project, environmental issues and remediation throughout the construction and operational phases of the project. This information should be available through a web-based information sharing database, as well as through hard copy reports and verbal communications.

5 Evaluation of the Environmental Assessment Process

5.1 Background

Background information on the approach for and preparation of the environmental impact assessment was provided by Derek Melton of Golder Associates Ltd.

Golder Associates was retained by North of 60 Engineering in 1996 to complete the environmental impact assessment and to prepare the Project Description to meet the EISC Guidelines. Golder prepared a screening level assessment for submission to the EISC. The assessment was based largely on a desktop review of existing information on environmental components and traditional land use. Field surveys for terrain, fisheries, vegetation, wildlife and archaeology were committed to in the EISC Project Description and were completed during June-July 1997. Information from the field surveys was then included in the Project Description submitted to the NEB for the *CEA Act* screening.

Based on experience with similar sized pipeline projects in the Deh Cho region (i.e., Fort Liard), Golder Associates expected that the Ikhil Project would be referred to the EIRB and that a more detailed environmental assessment would be prepared for submission to the EIRB. Hence the two Project Descriptions were only intended as screening level assessments. It is also important to keep in mind the scale of the Project (i.e., a small diameter buried pipeline with small-sized gas production and treatment facilities).

5.2 Scoping of the Assessment

As noted earlier (Section 4.2.2), most of the interviewees felt that the assessment adequately identified and addressed all of the major environmental and traditional use issues.

5.3 Baseline Information

5.3.1 Western Science

As noted above, the EISC submission was based on a desktop study. Information from existing studies, International Biological program sites, the Community Conservation Plans and an aerial reconnaissance of the proposed ROW was used to refine the pipeline routing and to complete the assessment.

Field surveys were subsequently completed in June-July 1996 and data from these surveys were included in the submission to the NEB.

The field program was minimal; spanning a period of about 10 days. The program involved a ground reconnaissance survey along the entire length of the pipeline ROW by both the senior environmental scientist for Golder Associates (D. Melton) and the senior engineer for North of 60 Engineering Ltd. (J. McDougal). Fish habitat surveys were also conducted in Douglas Creek.

Data from the field programs were used to complement information used in the earlier desktop assessment and to refine project design and mitigate potential Project effects. On the basis of this assessment, the pipeline ROW was modified in several locations. The pipeline crossing of Douglas Creek was also changed from a buried pipeline to an elevated pipeline to minimize slope stability issues and avoid disturbances of Douglas Creek.

Several of the interviewees that represented regulatory agencies for the Project noted that the completion of the field surveys increased confidence in the assessment submitted to the NEB. It also demonstrated that the proponent would live up to the commitments it made in the submission to the EISC.

One interviewee from DFO indicated that only minimal fisheries information was provided in the Project Descriptions and that it would have been desirable to have better fisheries data for inclusion in the assessment. In particular, as the baseline survey for fish habitat missed the main migration period for fish, the capability of some streams was underestimated.

In general, most interviewees felt that the level of effort for field surveys appeared to be adequate given the availability of existing information, the scale of the Project (i.e., a small diameter buried pipeline) and the types of potential environmental effects.

5.3.2 Traditional Knowledge

No formal traditional knowledge studies were conducted as part of the environmental baseline for the Ikhil Project. Instead, information on traditional use was based largely on the Community Conservation Plans and input from community members during the various community consultation activities. While one interviewee felt that changes in cultural values and traditional use were not well addressed in the assessment; another interviewee noted that “the Community Conservation Plans were the Traditional Knowledge source of the day” and that the Community Conservation Plans were used effectively in Project Descriptions. One interviewee noted that traditional knowledge studies would have been required had the Project advanced to a more comprehensive environmental assessment.

Regardless of the approach taken, most interviewees felt that traditional knowledge was used appropriately in the assessment. It was noted that the pipeline routing specifically avoided known harvesting sites for berries. The pipeline route was also spatially well separated from caribou harvesting areas.

While this approach was acceptable at the time of the assessment for the Ikhil Project, a similar project today would be required to conduct a traditional knowledge study and to demonstrate that traditional knowledge was used in the design of the Project and the impact assessment.

Guidelines should be developed to assist project proponents in determining an adequate approach for collection of Traditional Knowledge and use of such knowledge in the environmental assessment.

5.4 Environmental Assessment Methodology

As noted in Section 4, the environmental assessment in the two Project Descriptions was intended as a screening level assessment. As result, the assessment was largely qualitative and was based on the professional judgement of the assessment team. The assessment did comply with the EISC criteria for assessing impact significance (EISC 2004) and met the expectations of the NEB. The assessment of cumulative effects, while also quite simplified, was completed to typical and accepted standards for the period. As described earlier (Section 4.2.2), most interviewees, many of whom represented regulatory agencies, felt that the assessment was complete and that all issues were adequately addressed.

Under present day standards, the assessment for a pipeline project of similar scope would likely be expected to provide stronger baseline data and a more quantitative approach to effects characterization. One interviewee noted that, given the amount of existing and new activity proposed in the region, the cumulative effects assessment would be expected to be much more rigorous than earlier assessments, including that for the Ikhil Project. As indicated in an earlier recommendation, the EISC should develop and maintain a regional database on existing and proposed industrial and human activities as a basis for more rigorous assessment of cumulative effects. This database should also be available to the communities to allow them to better understand the effects of cumulative development on traditional use and other land uses.

5.5 Environmental Management and Mitigation

The Project Descriptions for the Ikhil Project (Golder 1997 a, d) provided a number of recommendations on means to minimize Project effects on:

- terrain
- sensitive vegetation
- fish and fish habitat
- wildlife
- traditional use

While most interviewees agreed that no major environmental issues arose as a result of the Project, some problems arose during construction and operation; specifically:

- A combination of Project activities along the ROW (e.g., clearing, construction of a shoo-fly) led to some localized slope stability issues near the brow of the slope on the north side of Douglas Creek. This was exacerbated by use of the cleared ROW as a skidoo route by local residents, particularly use of the ROW during the spring melt. The pipeline design was modified from a buried pipeline to an elevated pipeline at the crossing to partly address this issue. An alternate route was also laid out for local skidoo use to reduce stability effects. The problem area on the slope is now revegetated and appears to be stable.
- Some creek crossings were found to contain small amounts of debris that might block fish passage. DFO required clearing of this debris post-construction.
- Subsidence along the pipeline trench backfill resulted in some localized changes in surface drainage and subsequent highly localized revegetation issues. Remediation activities were continued for the first two years after construction to address the subsidence issues, changes in surface drainage and revegetation.

- Some construction waste was left along the ROW. Local workers were hired by the proponent to clean up the ROW during the summer after construction.
- One interviewee raised concerns in regards to the abandonment of sumps associated with the two well sites, and the handling of waste water from well production and general waste. Camp waste was disposed of using two camp sumps: one located at the Ikhil facility site; one located at the Douglas Creek camp site.
- Several interviewees noted that the access road from the Mackenzie River to the Project facilities and ROW had resulted in damage to vegetation and terrain. Environmental monitoring might have helped identify this issue early on and facilitated remediation of the detrimental effects.

Despite these issues, several interviewees felt that the environmental management plan for the pipeline was effective and that overall, these measures were successful.

In contrast to these views, based on an overflight of the pipeline ROW by DFO in 2000, one interviewee felt that the proponent had done a poor job in managing effects of the winter road, as well as reclamation and revegetation of problem areas. Another noted that the Project Engineer had to be pressed to address debris and sediment issues in several small watercourses.

One interviewee noted that while environmental management measures were included in the assessment, the environmental team was not involved in the implementation of these measures or monitoring. This was corroborated by former staff of DFO that noted that it would have been preferable to deal directly with fisheries biologists as opposed to the Project Engineer in relation to remedial measures for fish habitat.

For future projects, it is recommended that detailed environmental management plans be prepared prior to the start of construction as a condition of the environmental approval, and that the environmental management plans be reviewed by relevant federal, territorial and Inuvialuit agencies as to their adequacy. It is also recommended that the ILA be tasked with ensuring that these environmental management plans are properly implemented and that adequate remedial measures are completed to address any site-specific issues (see Monitoring and Follow-up; Section 5.6).

The issue of sumps and waste handling has come to the forefront in a number of recent applications to the EISC for land based exploratory drilling. Handling of drilling waste was also a major issue for the Devon Offshore Exploratory Drilling Program. Land-based concerns have arisen partly as a result of the failure of some of the historic sumps developed in conjunction with drilling programs during the 1970s and 1980s. There appears to be a trend by the EISC and federal regulators towards sumpless drilling, as well as the development of waste management facilities within the ISR.

It is recommended that the Inuvialuit and the federal government develop joint guidelines for the use and decommissioning of sumps, as well as the handling of drilling and production wastes for both onshore and offshore oil and gas developments.



5.6 Monitoring and Follow-up

Based on input from several interviewees, little to no effort was made to conduct post-construction environmental monitoring. No environmental monitoring was proposed or conducted by the proponent, nor was such monitoring required by the Inuvialuit or federal regulators. The only monitoring that was conducted during the post-construction period were the routine aerial reconnaissance surveys of the ROW for pipeline integrity. Some additional site-specific information was obtained during ground-based remedial work during the first two summers after construction. The NEB also conducted some safety inspections of the Project. One interviewee suggested that follow-up monitoring should have involved more ground-based inspections as opposed to helicopter-based inspections.

During construction, the ILA required that the Inuvialuit Petroleum Corporation hire a local inspector. At the time, the environmental inspection responsibilities were being passed from INAC to the ILA. However, there was considerable variability among the inspectors as no formal training standards had yet been established. In contrast, environmental inspectors for the ILA today must complete a recognized training program by institutions such as the Aurora College.

DFO also conducted several surveys of the ROW following construction. Based on these surveys, several creeks were found to have defined channels that had been partially blocked by sediment and/or debris. Following some debate between DFO and the Project Engineer, local workers were hired to clean up the ROW. As noted above, several interviewees felt that these issues could have been more easily dealt with if DFO had dealt directly with a fisheries biologist rather than the Project Engineer.

Of note, none of the environmental regulators, other than DFO, had a mandate to ensure that monitoring and follow-up activities did occur and that appropriate actions were taken to address any problem sites. One interviewee suggested that the EISC should receive annual reports on monitoring so that the committee can learn through experience.

For future pipeline projects, it is recommended that:

- routine inspections of the pipeline ROW should include an evaluation of environmental parameters along with pipeline parameters. If environmental issues are identified, qualified environmental professionals should be retained assess the issues and provide recommendations for remediation
- as a condition of project approval, monitoring or follow-up programs should be developed, as appropriate, to address specific issues of concern (e.g., uncertainty in project effects, uncertainty in mitigation success, monitoring to ensure that the proposed mitigation measures are effective)
- an annual monitoring report should be provided to the EISC and key federal regulators by the proponent to facilitate an adaptive management approach to better understand project effects and mitigation success

6 Evaluation of the Public Involvement and Consultation Process

6.1 General Approach

Community consultation activities for the Ikhil Project have been described in Section 2.4 (Table 2-3). A total of twenty (20) formal consultation events with communities and regulators were held during the Project design and environmental assessment stages.

Most interviewees felt that the community consultation effort was adequate given the norm of the day. One interviewee noted community consultation is required as part of the EISC process and that the proponent's consultation activities adequately met the requirements of the EISC process. Another interviewee commented that the Project Engineer spent a great deal of time in Inuvik and was often available to discuss the Project with the regulators or the communities, and that this greatly facilitated the review of the Project. It also helped build trust by communities and Inuvialuit organizations that the Project would be done carefully and negative effects would be minimized.

As noted earlier, the environmental consultant for the Project, Golder Associates, was not retained to work on the environmental assessment until 1996, well after the start of the consultation for the Project. Most of the earlier consultation work was led by the Project engineer.

Several interviewees noted that this was the first pipeline project in the region and that, in itself, generated strong public participation in the Project due to people wanting to know more about what the Project involved. Economic conditions in the ISR at that time were also weaker than during the 1970s and 1980s when there was substantial industrial activity in the ISR. In the 1990s, there was limited industrial activity and development in the region. Several interviewees commented that general public opinion supported the construction of the pipeline and the associated generation of jobs and economic opportunities. The public also supported the ability to access natural gas locally to replace the more expensive bunker 'C' fuel that had to be shipped into Inuvik as fuel for the electrical power generation plant. It also was the first major energy project undertaken by the Inuvialuit Petroleum Corporation in the ISR.

Three weaknesses in the community consultation process were noted by interviewees:

- Given the regulatory process at the time, there was a strong reliance on the proponent to consult with the communities. Today, most federal agencies would assume a role in posting information on the assessment on their web sites. Some agencies would also likely participate in the community meetings to ensure that adequate consultation occurs. As noted earlier, one interviewee felt that a public registry should be maintained by the EISC to improve access to information.
- One interviewee felt that the Inuvialuit Development Corporation (IDC) was not as attentive to the Hunters and Trappers Committees in the communities during the review of the Ikhil Project as they typically are today.

- Almost all of the community consultation activities occurred during the Project design and environmental approval process. Following Project approval, almost no community consultation or Project related information activities were provided by the Inuvialuit Petroleum Corporation or the IDC.

For future pipeline projects, it is recommended that:

- A public registry be established and maintained by the EISC to provide better access by community residents to information on proposed projects. This should include a web-based system, preferably coordinated with federal web-based registries, as well as access to hard copies and maps in each community (to allow those without computer skills or equipment to access the information).
- Following project approvals, and especially during construction and early operation, proponents should ensure that community organizations and residents are regularly informed on the project and have an opportunity to provide comments on mitigation success and project operations.

6.2 Key Issues

Interviewees were asked to identify the major issues that were raised by the communities. While the following list is by no means a comprehensive summary of all issues identified, it does highlight some important concerns associated with the Project. Issues raised included:

- While some people were against the Project, the economic benefits to Inuvialuit and access to a local energy supply were viewed by most as a positive effect.
- Elders were concerned about the changing face of the land (e.g., Tuk winter road), particularly the potential for ongoing development on the Mackenzie Delta. Some elders had heard of the land changes that had occurred in the Fort Nelson and Fort St. John areas in British Columbia (i.e., checkerboard development) and did not want the same to occur in the ISR
- Elders also expressed concern about the increased access to the land that would be provided by the pipeline ROW. In particular, some elders felt that the proposed 80 m wide ROW and work area was too wide. The proponent subsequently reduced the ROW and work space width to 30 m to address this concern.
- Community members and some regulators felt that this type of project and ongoing development in the region would detrimentally alter the social and cultural well being of the Inuvialuit. One interviewee that formerly represented a federal agency felt that these changes had not been addressed in the environmental assessment, nor were they addressed well by the regulatory process.
- Gwich'in organizations raised concerns that effects on Gwich'in people were not adequately addressed by the EISC and *CEA Act* process. They also felt that Gwich'in people would not benefit as much as the Inuvialuit.

Input from the community consultation activities and from the Community Conservation Plans was utilized in modifying the pipeline route, as well as an information source for the environmental assessment. For example, the final pipeline route avoided traditional harvesting areas (e.g., berry picking sites, caribou hunting areas) and designated

International Biological Program (IBP) sites. The pipeline route was also modified to avoid crossing Gwich'in lands.

Most interviewees felt that the Project Descriptions that were submitted to the EISC and the NEB adequately addressed all of the issues raised by community members and community organizations.



7 Conclusions and Recommendations

The Ikhil Project is currently the only hydrocarbon production and transportation facility in the ISR. Given the likely occurrence of similar types of developments in the Mackenzie Delta region should the Mackenzie Gas Project proceed, the Environmental Studies Research Fund (ESRF) commissioned a retrospective assessment of the Ikhil Project in regard to the regulatory process, the environmental assessment and public consultation and involvement. A retrospective review of engineering lessons learned from the Ikhil Project has been prepared by North of 60 Engineering (McDougal 2004).

Based on responses from a number of individuals who were involved with the regulatory review of the Ikhil Project during 1995-1997, the majority of the individuals interviewed felt that the regulatory process worked well and that the Project Descriptions filed with the EISC and NEB were adequate for the requirements of both processes and the regulatory climate of the day. Public consultation activities fully met the requirements of the EISC and appeared to have provided ample opportunity for community members and organizations to obtain information on the Project and provide input on important issues and suggested modifications.

No major environmental issues arose during the construction and operation of the production facilities and pipeline. The main environmental management issues that interviewees raised were slope stability on the north side of Douglas Creek, effects on fish habitat in other drainages, and subsidence along the pipeline trench backfill and associated revegetation needs.

At Douglas Creek, a combination of sensitive soils and terrain, ROW clearing and use of the ROW by local residents as a skidoo track led to slope stability issues. Modification of the pipeline design from a buried pipeline to an elevated pipeline, in combination with provision of an alternate route for skidoos was used to address this issue.

Minor changes in surface drainage associated with the pipeline and pipeline ROW (e.g., trench backfill subsidence, drainage intercepts) did result in minor debris and sedimentation issues in several small watercourses. Local workers were hired to remove the debris and to stabilize problem areas along the pipeline (e.g., addition of sand fill to subsidence areas, revegetation).

Minor subsidence of the pipeline trench backfill occurred in a number of places along the ROW. If remaining excess material remained along the ROW, this was used to fill the depressions. Sand was used in some cases.

The only major criticisms of the environmental program for the Ikhil Project related to the lack of environmental monitoring activities during construction and early operation of the Ikhil Project and, the involvement of environmental professionals only during the environmental assessment. Many of the interviewees felt that the minor environmental issues associated with the Project would have been better addressed had environmental professionals been involved in the Project design, environmental inspection and post-construction monitoring and remediation.



While the regulatory review, environmental assessment, public consultation and involvement were considered by most interviewees to have been adequate, a number of changes are recommended; specifically:

- Future projects should follow processes such as early and consistent community consultation, ready availability of Project representatives to regulators and the community, willingness to complete necessary field surveys, and sharing of information with the communities and regulators, to build trust in the community with respect to the Project and the integrity of the proponent.
- To facilitate efficient environmental reviews of future oil and gas production projects in the ISR, it is recommended that the Joint Secretariat, the CEA Agency and other federal agencies (i.e., INAC, DFO, EC) meet to develop and agree on a harmonized processes for both screening and more detailed reviews (i.e., referrals to the EIRB, comprehensive studies, federal panel reviews). This would build on ongoing harmonization already in place, and should include:
 - The setting of maximum timelines for specific stages of the federal regulatory review process.
 - A process for development, review and finalization of Terms of Reference for more detailed assessments.
 - Clarification on the environmental review process for trans-boundary projects or trans-boundary effects that trigger the Mackenzie Valley Environmental Impact Review process and/or the Gwich'in land and Water Board process.
- Guidelines should be developed to assist project proponents in determining an adequate approach for collection of Traditional Knowledge and use of such knowledge in the environmental assessment for their projects.
- To improve the assessment and understanding of cumulative effects of development, the EISC should develop and maintain a regional database on industrial and human activities and environmental resources. The database can be used by regulators and the public to more effectively address cumulative environmental effects of development, including effects on the traditional lifestyles of the Inuvialuit.
- To improve the transparency of the regulatory review process, the EISC should establish a public registry of all projects under review and information associated with these projects. While a web-based registry, such as employed by many federal agencies, would be useful to some community members, communication of similar information by less technologically-reliant means (e.g., hard copy reports and maps, verbal communications) is also required for elders and other community members who may not have access to computers and the internet.
- It is recommended that the Inuvialuit and the federal government develop joint guidelines for the use and decommissioning of sumps, as well as the handling of drilling and production wastes for both onshore and offshore oil and gas developments.
- Environmental inspection and monitoring should be required for other production and pipeline transportation projects in the region until potential environmental effects of pipelines on the tundra and taiga ecosystems are better understood and mitigation measures are proven. Environmental management plans should be developed as a condition of project approval and should be reviewed and signed off by the ILA and



the appropriate federal agency (e.g., INAC, DFO, EC). The ILA should be responsible for ensuring that the environmental management plans are implemented, monitoring activities are completed and appropriate remedial actions are implemented to address environmental concerns. Annual monitoring reports should be provided to the EISC and key federal regulators to facilitate an adaptive management approach to better understand project effects and mitigation success.

- Routine inspections of the pipeline ROW should include an evaluation of environmental integrity as well as pipeline integrity, especially during the first several years of operations until the ROW is stable and revegetated. This might involve an annual inspection by an environmental professional. If environmental issues are identified, the environmental professional would assess the issue and provide recommendations for remediation.
- It is recommended that project proponents be responsible for providing regulators, relevant federal and territorial agencies, Inuvialuit organizations and communities with regular updates on the project, environmental issues and remediation throughout the construction and operational phases of the project. As noted above, this information should be available through a web-based information sharing database, as well as through hard copy reports and verbal communications. These organizations and communities should also have an opportunity to provide comments on mitigation success and project operations.

While the land ownership issue for the Ikhil Project was unusual, to avoid similar administrative and revenue issues with other production projects in the future, administration of all hydrocarbon production should be clearly assigned to either the Inuvialuit Regional Corporation or the federal government as appropriate, whether it be other 3rd party rights on the Inuvialuit private lands, or in negotiating future land claim agreements.



8 References

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Appendix A Copy of Questionnaire



Interview Consent

KAVIK-AXYS Inc. and Jacques Whitford-AXYS have been asked to conduct a study of the Ikhil Gas Development and Pipeline.

The gas development and pipeline were initiated by the Inuvialuit Petroleum Corporation in 1995 to provide natural gas to the Town of Inuvik. The Ikhil well site is located 50 kilometres north of Inuvik and immediately to the east of the Mackenzie River delta. The well was drilled during the winter of 1997/98 followed by construction of the pipeline and production facilities the following winter (1998/99).

The objective of the study is to identify important lessons learned from the Ikhil development of relevance to future small hydrocarbon projects in the Mackenzie Delta sure to arise as a result of the Mackenzie Gas Pipeline. The effectiveness and efficiency of the Ikhil environmental assessment process and the regulatory review and approvals process will be reviewed. The study will not examine the Mackenzie Gas Pipeline project.

The Ikhil study is undertaken on behalf of the Environmental Studies Research Funds (ESRF). The ESRF was established under the Canada Petroleum Resources Act “to finance environmental and social studies pertaining to the manner in which, and the terms and conditions under which, exploration, developmental and production activities on frontier lands under this Act or any other Act of parliament, should be conducted.”

We are requesting a brief interview with you because of your involvement in and/or your knowledge of the Ikhil application, information sessions, and the review and decision processes. The information you provide may be used in the summary report to be submitted upon completion of the study. Information from the interview will only be used for the expressed purpose of the Ikhil Study. Information from the interviews will not be attributed directly to specific individuals unless you indicate that it is suitable to do so.

On behalf of the Ikhil Study, we appreciate your consent to proceed with this interview.

Name: _____

Signature: _____

Date: _____

Information can be _____ should not be _____ attributed to me in the report
(initial preference)

Interviewer: _____

Questionnaire

1. How would you describe your connection with the Ikhil gas development and pipeline project?
2. What were the issues associated with your area of expertise or responsibility?

Part I: Scoping of the Assessment

- | | | | |
|---|-----|----|---------|
| 3. Were all of the important issues identified? | Yes | No | N/A |
| 4. Were any issues omitted or incorrectly characterized?
so, identify specific issues) | Yes | No | N/A (if |
| 5. Why did these omissions occur? | | | |

Part II: Baseline Information

- | | | | |
|--|-----|----|-----|
| 6. Was there adequate baseline data to conduct the assessment? | Yes | No | N/A |
| 7. If no, what additional information was required? | | | |
| 8. Was traditional knowledge used in characterizing baseline conditions? | Yes | No | N/A |

Part III: Environmental Assessment Process:

- | | | | |
|---|-----|----|-----|
| 9. Were the assessment methods defined?

Effects characterizations methods?

Determination of significance? | Yes | No | N/A |
| 10. Was the EA Process conducted in a timely fashion? | | | |

Part IV: Environmental Management and Mitigation

- | | | | |
|---|-----|----|-----|
| 11. Were the mitigation measures and environmental management
measures adequate?
• During Construction? | Yes | No | N/A |
| If no, what additional measures should have been included? | | | |
| • During Operations? | Yes | No | N/A |
| If no, what additional measures should have been included? | | | |
| 12. Was there sufficient information to develop environmental management and mitigation plans? | | | |
| | Yes | No | N/A |

- | | | | |
|---|-----|----|-----|
| 13. Were these measures appropriate to the development? | Yes | No | N/A |
| 14. Were the plans implemented? | Yes | No | N/A |

Part V: Monitoring

- | | | | |
|--|-----|----|-----|
| 15. Were the monitoring programs adequate (i.e., important needs identified; appropriate methods used)?
If not, what else needed to be monitored? | Yes | No | N/A |
| 16. Were the monitoring programs properly implemented? | Yes | No | N/A |
| 17. Were appropriate response actions taken in regard to results from the monitoring program? | Yes | No | N/A |
| 18. Was information from the monitoring program available to all suitable parties? | Yes | No | N/A |

Part VI: Regulatory Review and Approvals process:

- | | | | |
|--|-----|----|-----|
| 19. Was the review process: | | | |
| • Open and transparent to all participants? | Yes | No | N/A |
| • Time efficient and of adequate duration? | Yes | No | N/A |
| • Fair (i.e., equal access and opportunity for all participants)? | Yes | No | N/A |
| • Effective (issues properly identified and assessed)? | Yes | No | N/A |
| 20. Were there constraints that reduced the efficiency of the process? | Yes | No | N/A |
| 21. What could have been done to improve the process if carried out now? | | | |
| 22. How would you describe the inclusion of other interests in either the application or within the review and approval process? | | | |
| 23. Would you say the approvals and conditions attached to the development were appropriate? | Yes | No | N/A |

Part VII: Community Consultation and Involvement:

- | | | | | |
|--|---|---|---|---|
| 24. How would you describe the community participation process? (where 1 being poor and 4 being excellent) | | | | |
| • Leading up to the application? | 1 | 2 | 3 | 4 |
| • During the review and approvals? | 1 | 2 | 3 | 4 |
| • During construction? | 1 | 2 | 3 | 4 |
| • Following construction? | 1 | 2 | 3 | 4 |

- | | | | |
|---|-----|----|-----|
| 25. Were community members adequately informed about the project? | Yes | No | N/A |
| 26. Were community interests adequately considered in the assessment? | Yes | No | N/A |
| 27. How were community issues or concerns addressed? | | | |
| 28. What was the role of the media in regards to the Ikhil development? | | | |

Future Applications:

29. Given there may be several projects of a similar nature to the Ikhil development would you consider changes to:
- Environmental processes
 - Other permitting (i.e.,: land, water, air, waste, etc.)
 - Follow up monitoring
 - Community information / engagement



Appendix B List of Individuals Interviewed

List of Individuals Interviewed

Name	Title (at that time)	Affiliation (at that time)	Interviewed
Allen, Ron	Area Manager	Fisheries and Oceans Canada	Yes
Andrews, Tome		Prince of Wales Northern Heritage Centre	No*
Arends, Hans		Inuvialuit Land Administration	No*
Arey, Carol	President	Aklavik HTC	No*
Baker, Terry	Chief Conservation Officer	National Energy Board	Yes
Beck, Tom	Chair	Environmental Impact Screening Committee	Yes
Bell, Bob	Chair	Fisheries Joint Management Council	No*
Bergman, Rudy	Information Coordinator	National Energy Board	No*
Binder, Richard	Resource Person	Inuvialuit Game Council	Yes
Branigan, Marsha	Director	Environmental Impact Screening Committee	No*
Burns, James	Vice President, Exploration	Inuvialuit Petroleum Corporation	Yes
Butters, Tom	Director	Environmental Impact Screening Committee	No*
Carpenter, Larry	Chair	Wildlife Management Advisory Council -NWT	Yes
Cockney, Rudy	District Manager Land Use	Indian and Northern Affairs Canada	No*
Connelly, Roger		Inuvialuit Regional Corporation	No*
Day, Billy	President	Inuvik HTC	No*
Day, William		Inuvik HTC	No*
Doug Chipertzak	Area Habitat Biologist	Fisheries and Oceans Canada	Yes
Drummond, Steve		Canadian Coast Guard	No*
Ferguson, Brian		Gwich'in Land and Water Board	Yes
Gallup, Scott	Water Resources Officer	Indian and Northern Affairs Canada	No*
Graf, Linda		Environmental Impact Screening Committee	Yes
Graf, Ron		NWT Resource, Wildlife and Economic Development	Yes
Handbidge, Bruce	Resource Person	Wildlife Management Advisory Council -NWT	No*
Harbicht, Steve	Head	Assessment and Monitoring, Environmental Protection Board, Environment Canada	Yes
Herbert, J.W.	Project Manager	Inuvialuit Petroleum Corporation	No*
Ilasiak, Alex	Land Administrator	Inuvialuit Land Administration	No*

List of Individuals Interviewed (cont'd)

Name	Title (at that time)	Affiliation (at that time)	Interviewed
Kaglik, Alex	Director	Environmental Impact Screening Committee	No*
Korec, John	Senior Environmental Specialist	National Energy Board	Yes
Latour, Paul		Canadian Wildlife Service	Yes
Mason, Andrew	Archaeologist	Golder Associates Ltd.	No*
McCoul, Jim		Indian and Northern Affairs Canada	No*
McDougall, James	Vice President	Northern Engineering	No*
Melton, Derek		Golder Associates Ltd.	Yes
Mohnet, Steve		Indian and Northern Affairs Canada - Water Resources	No*
Morrison, Ron	Regional Superintendent	NWT Resource, Wildlife and Economic Development	No*
Moshenko, Richard	Division Manager, Fisheries Management	Fisheries and Oceans Canada	No*
Nagy, John	Director	Environmental Impact Screening Committee	No*
Newmark, Russell		Inuvialuit Petroleum Corporation	No*
Pokiak, Calvin		Inuvialuit Land Administration	Yes
Pokiak, James	President	Tuktoyaktuk HTC	Yes
Robertson, Elizabeth		Prince of Wales Northern Heritage Centre	No*
Robinson, Neil	Fishery Officer	Fisheries and Oceans Canada	No*
Smith, Duane	President	Inuvik HTC	Yes
Snow, Norm	Executive Director	Joint Secretariat	Yes
Stewart, Doug	Director - Wildlife and Fisheries Division	NWT Resource, Wildlife and Economic Development	No*
Thorbourne, James		Inuvialuit Land Administration	No*
Tompson, Neil		NWT Water Board, Regulatory approvals Section	No*
Usher, Peter	Chair	Wildlife Management Advisory Council -NWT	No*
Voudrach, Paul	Assistant Land Administrator	Inuvialuit Land Administration	Yes
Walker, Valoree	Permitting/Executive Director	Aurora Research Institute	No*
Wright, Dennis	Coordinator, Environmental Affairs	Fisheries and Oceans Canada	Yes

NOTE:

* Individual Unavailable; Individual not willing to participate; or Individual had nothing to contribute