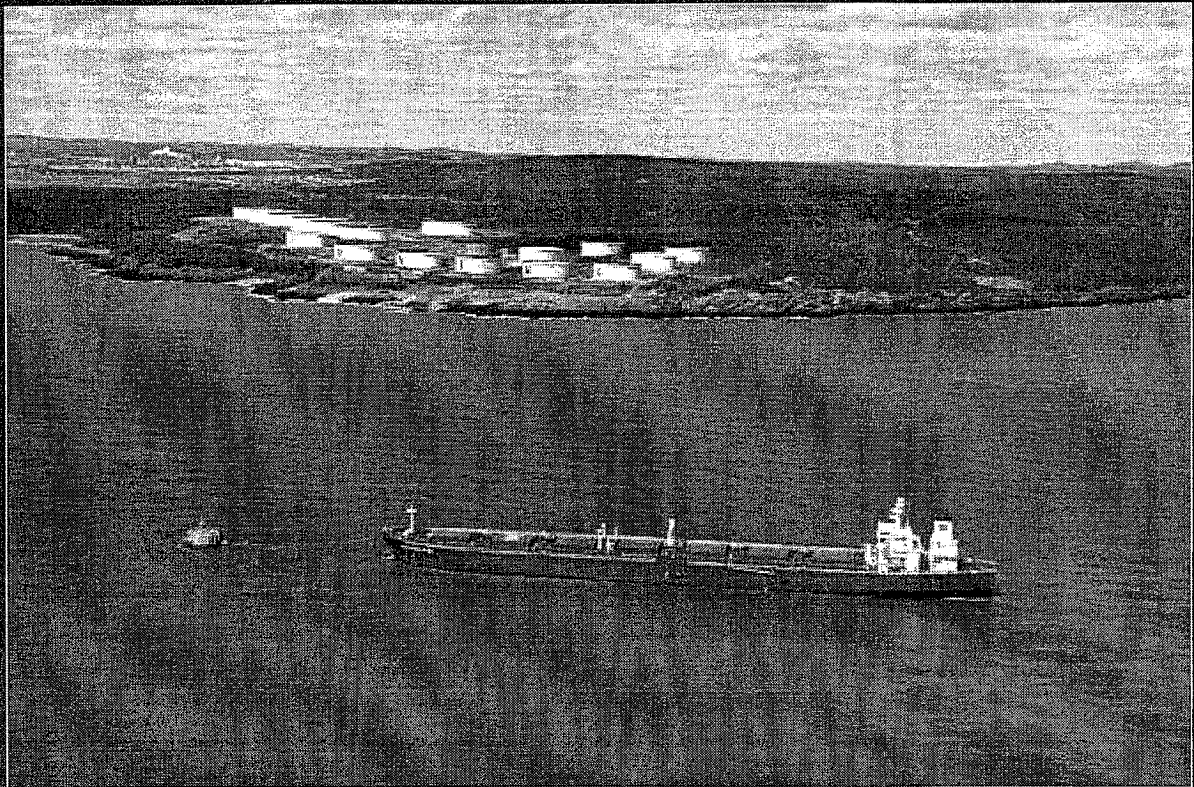


LNG project



Liquefied Natural Gas Marine Terminal & Multi-Purpose Pier

March 23, 2004



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1.0 INTRODUCTION

Irving Oil Limited (Irving) is proposing to develop the Liquefied Natural Gas (LNG) Marine Terminal and Pier Project (the "Project") at the Irving Canaport facility (Canaport facility), near Saint John, New Brunswick (Figure 1.1). The Project will include the necessary infrastructure to also receive and unload Orimulsion[®] tankers to tanks currently under construction at the Canaport facility. The Project includes:

- a multi-purpose pier (the "pier"; for receiving LNG and Orimulsion[®]);
- a LNG storage and regassification facility;
- a natural gas pipeline to the existing Irving Refinery in the City of Saint John; and
- an Orimulsion[®] pipeline to storage tanks (under construction) at the Canaport facility.

This Environmental Impact Statement (EIS) was prepared by Jacques Whitford Environment Limited (Jacques Whitford) under the management of Fundy Engineering and Consulting Limited on behalf of Irving. Jacques Whitford was assisted by ADI Limited (labour and economy, and road transportation network), Daniel K. Glenn & Associates (visual assessment), and Quest Consultants Inc (consequence analysis). The purpose of the EIS is to assess the significance of potential environmental effects of the proposed Project to the receiving environment, and to identify methods of optimizing positive environmental effects and reducing adverse environmental effects resulting from the Project.

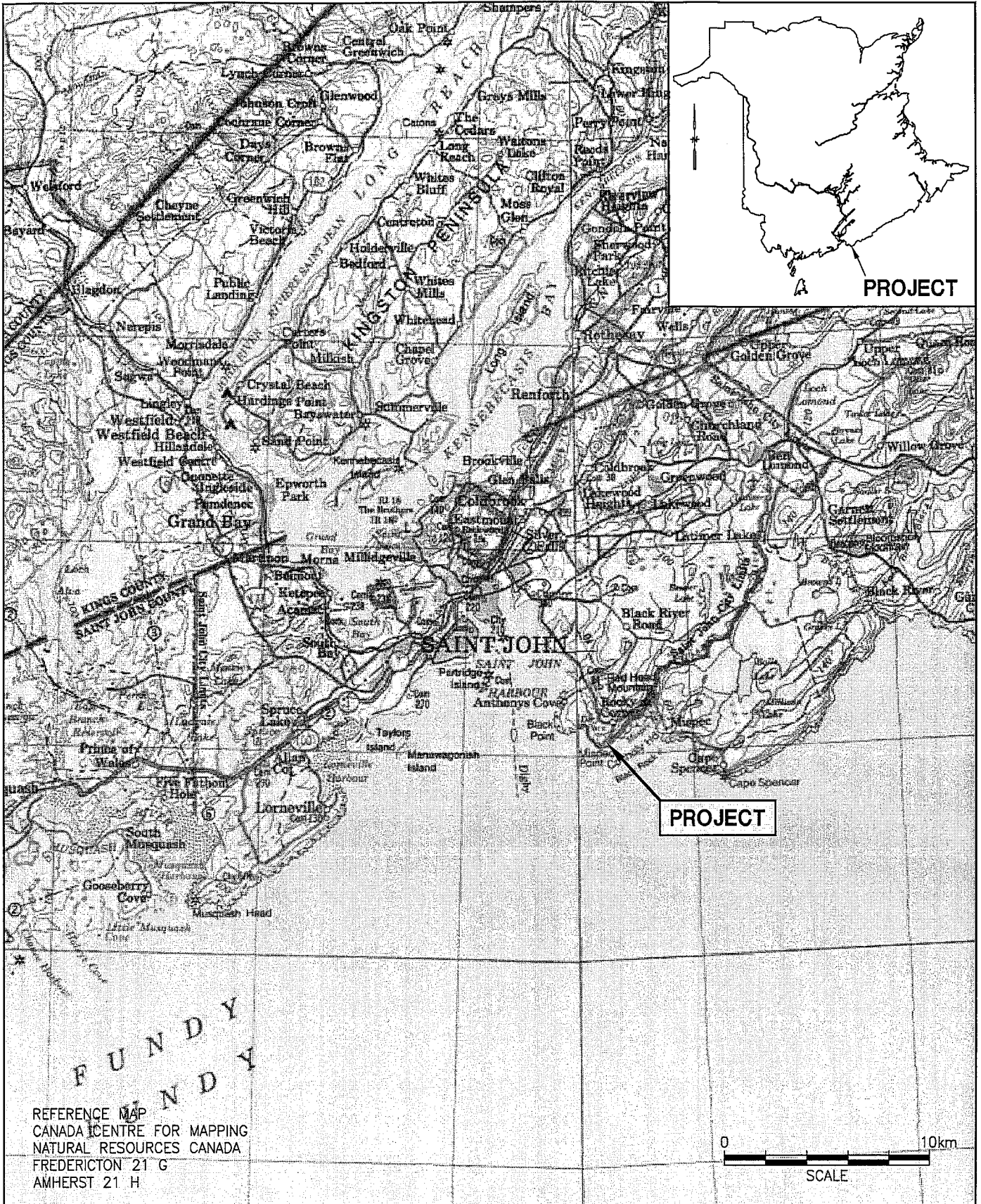
Throughout this EIS the trademark name, Orimulsion[®], is used to refer to emulsified bitumen.

1.1 Project Overview

The Project facilities will receive and store LNG that is unloaded from tankers and regassify the LNG into natural gas for delivery to a pipeline. The terminal design capacity will be 28.3 million m³/d (1 000 MMSCFD). The terminal is expected to operate continuously.

The proposed Project will consist of:

- a multi-purpose pier and unloading arms;
- three large-capacity, low pressure, LNG storage tanks;
- in-tank LNG pumps;
- LNG booster pumps (external);
- vaporizers (submerged combustion type);
- vapour handling equipment;
- various supporting utilities, piping, valves, and safety systems required for safe operation of the terminal; and
- pipelines for natural gas (approximately 9 km) and Orimulsion[®] (approximately 600 m).



REFERENCE MAP
 CANADA CENTRE FOR MAPPING
 NATURAL RESOURCES CANADA
 FREDERICTON 21 G
 AMHERST 21 H

**PROJECT LOCATION
 CANAPORT LNG PROJECT**

Date:	2004 02 06	Scale:	1 : 250 000
Job No.:	15089	Dwg. No.:	1.1



Jacques Whitford
 Consulting Engineers
 Environmental Scientists

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The facility's main processes are:

- unloading LNG from LNG ships;
- unloading Orimulsion[®] from Orimulsion[®] tankers;
- LNG storage; and
- LNG vaporization and send-out.

1.1.1 Proponent

Founded in 1924, Irving is the regional energy processing, transporting, and marketing company focusing on customer service and supply chain management. Irving serves customers in Eastern Canada, Quebec, and New England with a range of finished energy products, including gasoline, diesel, home heating fuel, jet fuel, as well as complementary products and services, such as convenience shopping and fresh foods.

1.2 Regulatory Context

The Project is subject to the *Clean Environment Act – Environmental Impact Assessment Regulation* (87-83) and to the *Canadian Environmental Assessment Act (CEAA)*.

1.2.1 Provincial, Federal and Municipal Regulation

Pursuant to the *Environmental Impact Assessment Regulation 87-83* of the *Provincial Clean Environment Act*, Irving registered the Project as an undertaking for Environmental Impact Assessment (EIA) review on July 25, 2001.

On December 14, 2001 the Minister of the Environment and Local Government determined that the completion of an EIA was required to assess the nature and significance of the proposal's potential environmental effects. On November 19, 2001 Fisheries and Oceans Canada (DFO) determined that the Project was subject to federal regulatory review under the *Navigable Waters Protection Act (NWPA)*. As a result, an environmental assessment must be completed in accordance with *CEAA* pursuant to Section 5(1)(d). The environmental assessment will be a comprehensive study under *CEAA* as pursuant to the *Comprehensive Study List Regulation*, Part IX, Transportation, Section 28, the project involves the proposed construction of a marine terminal designed to handle vessels larger than 25,000 DWT that is not on lands that are routinely and have been historically used as a marine terminal or that are designed for such use in a land-use plan that has been the subject of public consultation [sor/99-439]. The Project will also be a comprehensive study pursuant to the *Comprehensive Study List Regulations*, Part IV, Oil and Gas Projects, section 13 as it involves construction of a facility for the liquefaction, storage or regasification of liquefied natural gas with a liquefied natural gas processing capacity of more than 3 000 t/d or a liquefied natural gas storage capacity of more than 50 000 t. Pursuant to subsection 17(1) of

CEAA, DFO formally delegated the responsibility for preparation of an acceptable Comprehensive Study Report to Irving.

The Federal Coordination Regulation process, in addition to identifying DFO (Coast Guard – Navigable Waters Protection) as the Responsible Authority for this Project, has identified Transport Canada – Marine Safety, Environment Canada, and Natural Resources Canada as departments in possession of specialist or expert information or knowledge. DFO (Habitat Management) conducted a preliminary review of works proposed in or near the water (*i.e.*, pier) and concluded, based on the initial project details, that this undertaking would not likely result in the harmful alteration, disruption, or destruction of fish habitat and therefore would not likely require an authorization pursuant to Section 35(2) of the *Fisheries Act* (T. Currie, pers. comm.).

Since the initial review under the Federal Coordination Regulation Process, project details have identified that the diversion of the Canaport stream and the marine pier will likely require an Authorization for the harmful alteration, disruption or destruction of fish habitat pursuant subsection 35(2) of the *Fisheries Act*. The responsible authorities (DFO and Environment Canada) have indicated the construction and operation of the multi-purpose pier and the LNG facility are the focus of the environmental assessment in respect of the requirements of CEAA.

The provincial Minister of Environment and Local Government appointed a Technical Review Committee (TRC) comprised of technical specialists from various government agencies:

- NB Department of the Environment and Local Government (NBDELG);
- NB Department of Natural Resources (NBDNR);
- NB Department of Energy;
- NB Department of Health and Wellness;
- NB Department of Transportation;
- NB Culture and Sport Secretariat;
- NB Workers Health, Safety and Compensation Commission;
- NB Department of Public Safety;
- City of Saint John;
- Environment Canada;
- Fisheries and Oceans Canada (DFO);
- Transport Canada – Marine Safety;
- Canadian Environmental Assessment Agency;
- Atlantic Pilotage Authority;
- Saint John Port Authority;

- Saint John Marine Pilots Association; and
- Natural Resources Canada.

The TRC provides a federal-provincial harmonized review for the EIS. The Provincial Department of the Environment and Local Government is the lead agency for this review. The National Energy Board is an expert Department, providing comment to the TRC. It is the intent of this harmonized process to ensure that the public and the proponent are provided with a simplified process, avoiding confusion and duplication.

After reviewing the initial registration document, additional information provided by Irving, and issues expressed by the public following public review of Draft EIA Guidelines, Final EIA Guidelines were developed by the Technical Review Committee, and issued to Irving in March of 2002. Upon their receipt, Irving provided the Minister with detailed Terms of Reference (TOR) on May 30, 2002, which described the approach to be used in the EIA. The TOR were evaluated through a consultative process involving the proponent, the appropriate government review agencies, and the public. The TOR were revised and submitted to the TRC on September 22, 2003. The revised TOR included revisions to reflect the inclusion of the offloading of Orimulsion[®] at the multi-purpose pier as a part of the Project. The EIA for the Coleson Cove Generating Station Refurbishment Project, completed in 2002, included unloading of Orimulsion[®] at the Irving monobuoy. An engineering evaluation determined thereafter that it was not technically feasible to unload both crude oil and Orimulsion[®] at the monobuoy. As a consequence, Irving has included the unloading of Orimulsion[®] at the multi-purpose pier as a part of this Project.

In accordance with the Guidelines, this EIS fulfils the requirements of the EIA Report and Comprehensive Study Report. It will be reviewed by the TRC for adequacy, and upon its approval, the Final EIS will be reviewed by the public pursuant to regulatory requirements.

A summary of the EIS will be prepared by the DELG to assist members of the public in becoming familiar with the information. The TRC will also prepare a General Review Statement summarizing its comments on the review of the EIS. These documents and the EIS are released for a period of 30 days for public review and comment, after which, the schedule and location(s) of public meeting(s) will be announced. The Responsible Authority will submit the EIS (formally referred to as the Comprehensive Study Report) to the federal Environment Minister and the Canadian Environmental Assessment Agency, for public review and comment. The federal review period will be coincident with the consultation period described above.

Public meetings generally take place near the area where the Project is being proposed and provide all interested parties with an opportunity to make comments, raise concerns, or ask questions about any matter covered in the EIS. Following the public meeting, a period of 15 days will be reserved for members of the public to submit written comments to the Minister of the Environment and Local Government. These comments will be shared with the federal government. At the end of this period, a summary of public

participation is made available to the public and presented to the Ministers. At any time after this date, the Cabinet may render a decision to issue or deny an approval for the Project. Similarly, the federal Minister of the Environment makes a determination on next steps and advises the Responsible Authority accordingly.

Permits

A list of legislation that may apply to this Project is provided in Table 1.1.

Table 1.1 Legislation that May be Applicable to the Project

Legislation	Agency	Project Activity
Federal		
<i>Canadian Environmental Assessment Act</i>	<ul style="list-style-type: none"> Environment Canada/DFO Canadian Environmental Assessment Agency 	<ul style="list-style-type: none"> The Project
<i>Canadian Environmental Protection Act</i>	<ul style="list-style-type: none"> Environment Canada 	<ul style="list-style-type: none"> Hazardous Wastes, POL Storage
<i>Canadian Environmental Protection Act - Part 7, Division 3, 1999 (Ocean Disposal Permit)</i>	<ul style="list-style-type: none"> Marine Environment Division Environmental Protection Service Environment Canada 	<ul style="list-style-type: none"> Port Development
<i>Navigable Waters Protection Act</i>	<ul style="list-style-type: none"> Canadian Coast Guard (CCG) (DFO) 	<ul style="list-style-type: none"> Works or Construction Activity in Navigable Waters
<i>Canada Marine Act</i>	<ul style="list-style-type: none"> Transport Canada 	<ul style="list-style-type: none"> Exclusion Zones
<i>Canada Shipping Act</i> <ul style="list-style-type: none"> <i>Aids to Navigation Protection Regulations</i> <i>Air Pollution Regulations</i> <i>Anchorage Regulations</i> <i>Charts and Nautical Publications Regulations</i> <i>Collision Regulations</i> 	<ul style="list-style-type: none"> CCG (DFO) Transport Canada 	<ul style="list-style-type: none"> Shipping Worker Health and Safety
<ul style="list-style-type: none"> <i>Dangerous Chemicals and Noxious Liquid Substances Regulations</i> <i>Dangerous Bulk Materials Regulations</i> <i>Dangerous Goods Shipping Regulations</i> <i>Eastern Canada Vessel Traffic Services Zone Regulations</i> <i>Fire Detection and Extinguishing Equipment Regulations</i> <i>Garbage Pollution Prevention Regulations</i> <i>Home-trade, Inland and Minor Waters Voyages Regulations</i> 	<ul style="list-style-type: none"> CCG (DFO) Transport Canada 	<ul style="list-style-type: none"> Shipping Worker Health and Safety

Table 1.1 Legislation that May be Applicable to the Project

Legislation	Agency	Project Activity
<ul style="list-style-type: none"> • <i>Hull Construction Regulations</i> • <i>Hull Inspection Regulations</i> • <i>Life Saving Equipment Regulations</i> • <i>Marine Machinery Regulations</i> • <i>Navigating Appliances and Equipment Regulations</i> • <i>Non-Pleasure Craft Sewage Pollution Prevention Regulations</i> • <i>Oil Pollution Prevention Regulations</i> • <i>Pollutant Discharge Reporting Regulation, 1995</i> • <i>Safe Working Practices Regulations</i> • <i>Vessel Traffic Services Zones Regulations</i> • <i>VHF Radiotelephone Practices and Procedures Regulations</i> 		
<i>Species at Risk Act</i>	<ul style="list-style-type: none"> • Environment Canada 	<ul style="list-style-type: none"> • Construction of Facilities and Pipeline
<i>Migratory Birds Convention Act</i>	<ul style="list-style-type: none"> • Environment Canada 	<ul style="list-style-type: none"> • Construction of Facilities and Pipeline
<i>Pilotage Act</i>	<ul style="list-style-type: none"> • Transport Canada • Atlantic Pilotage Authority 	<ul style="list-style-type: none"> • Tanker Movements
<i>Transportation of Dangerous Goods Act, 1992 and Regulations</i>	<ul style="list-style-type: none"> • Transport Canada 	<ul style="list-style-type: none"> • Transporting and Handling Dangerous Goods
<i>Transportation Act Flammable Liquids Bulk Storage Regulations</i>	<ul style="list-style-type: none"> • Canadian Transport Commission 	<ul style="list-style-type: none"> • Storage of Flammable Liquids at Site
<i>National Building Code of Canada</i>	<ul style="list-style-type: none"> • Canadian Commission on Building and Fire Codes 	<ul style="list-style-type: none"> • Facilities
<i>National Fire Code of Canada</i>	<ul style="list-style-type: none"> • Canadian Commission on Building and Fire Codes 	<ul style="list-style-type: none"> • Facilities
<i>National Plumbing Code of Canada</i>	<ul style="list-style-type: none"> • Canadian Commission on Building and Fire Codes 	<ul style="list-style-type: none"> • Facilities
<p>Provincial <i>Environmental Impact Assessment Regulations under the Clean Environment Act</i> <i>Transportation of Dangerous Goods Act and Regulations</i></p>	<ul style="list-style-type: none"> • NBDELG • Department of Public Safety 	<ul style="list-style-type: none"> • The Project • Transporting or Handling Dangerous Goods

Table 1.1 Legislation that May be Applicable to the Project

Legislation	Agency	Project Activity
<i>Clean Environment Act</i> <i>Clean Water Act</i> <i>Clean Air Act</i>	<ul style="list-style-type: none"> NBDEHG 	<ul style="list-style-type: none"> Altering a Waterbody, Using Surface, Ground and Shore Waters Construction and Operation of Facilities Waste Disposal Transport and Handling of Hazardous Goods
<i>Fire Prevention Act</i> <ul style="list-style-type: none"> <i>Fire Prevention and Inspection Regulations</i> <i>Fire Extinguisher Servicing Regulations</i> <i>Smoke Alarms and Smoke Detectors Regulations</i> 	<ul style="list-style-type: none"> Department of Public Safety 	<ul style="list-style-type: none"> Facilities
<i>Gas Distribution Act</i>	<ul style="list-style-type: none"> Department of Energy 	<ul style="list-style-type: none"> Pipeline Construction and Operation
<i>Boiler and Pressure Vessel Act</i>	<ul style="list-style-type: none"> Department of Public Safety 	<ul style="list-style-type: none"> Pipeline Construction and Operation
<i>Forest Fires Act</i>	<ul style="list-style-type: none"> NBDNR 	<ul style="list-style-type: none"> Accidental Event
<i>Labour Relations Act</i> <i>Labour Relations Regulations</i>	<ul style="list-style-type: none"> Department of Training and Employment Development 	<ul style="list-style-type: none"> Worker Health and Safety
<i>Occupational Health and Safety Act</i> <ul style="list-style-type: none"> <i>Occupational Health and Safety Regulations</i> <i>Occupational Health and Safety Code of Practice for Working Alone Regulations</i> <i>Workplace Hazardous Materials Information System (WHMIS) Regulations</i> 	<ul style="list-style-type: none"> Department of Training and Employment Development 	<ul style="list-style-type: none"> Construction and Operation Worker Health and Safety
<i>Workers' Compensation Act</i> <i>Workers' Compensation Regulations</i>	<ul style="list-style-type: none"> Department of Training and Employment Development 	<ul style="list-style-type: none"> Worker Health and Safety

In addition to the statutes and regulations listed in Table 1.1, the New Brunswick Coastal Area Protection Policy establishes minimum standards for management and sustainable development of coastal lands in unincorporated areas of the province. The objectives of the policy include:

- to reduce the likelihood of threats to personal safety by storm surges and to minimize danger to personnel involved in emergency and rescue efforts during storm and/or flooding events;
- to minimize contamination of water and wetlands from hazardous materials or other contaminants and minimize intrusion of salt water into wells due to water table draw-down;
- to maintain the buffering capacity of coastal areas to protect inland areas from storm surges;
- to maintain flora and fauna, both for role played in traditional fisheries and eco-tourism, as well as for their inherent value in maintaining the coastal ecosystem; and

- to minimize public expenditures required to repair storm damage to public property such as roads, bridges, and public buildings, as well as to reduce expenditures required to control erosion as a means of protecting human-made structures.

The coastal area has been divided into three zones based on sensitivity to impact. The following activities are restricted in all three zones:

- construction of groynes (rigid structures built from shore to protect the shore from erosion, to trap sand or to redirect a current);
- infilling;
- dredging, excavation and associated spoil disposal except with an Ocean Disposal Permit from the Federal Government;
- beach quarrying; and
- causeways, where a bridge is a technically feasible alternative.

None of the Project activities involve prohibited activities.

A list of permits, authorizations, and/or licences that may be required is presented in Table 1.2.

Table 1.2 Permits, Authorization, and Licences that May be Required for the Project

Project Feature/Activity	Permit, Authorization, Licence	Issuing Agency
Pier Construction, Salt Water Intake/ Discharge	Navigable Waters Permit under the <i>Navigable Waters Protection Act</i>	<ul style="list-style-type: none"> • CCG (DFO)
Pier Construction	<ul style="list-style-type: none"> • Habitat Alteration Disruption and/or Destruction (HADD) Authorization under Section 35(2) of the <i>Fisheries Act</i>. • Ocean Dredging and Disposal Permit under <i>Canadian Environmental Protection Act</i>. 	<ul style="list-style-type: none"> • DFO • Environment Canada
Water Crossings	<ul style="list-style-type: none"> • Watercourse and Wetland Alteration Permit (for each crossing) pursuant to <i>Clean Water Act</i> 	<ul style="list-style-type: none"> • NBDELG
Diversion of Canaport Stream	<ul style="list-style-type: none"> • Habitat Alteration Disruption and/or Destruction (HADD) Authorization under Section 35(2) of the <i>Fisheries Act</i>. 	<ul style="list-style-type: none"> • DFO
Site Preparation	<ul style="list-style-type: none"> • Burning permit under the <i>Forest Fires Act</i> 	<ul style="list-style-type: none"> • NBDNR
The Project	<ul style="list-style-type: none"> • Development and Building Permit 	<ul style="list-style-type: none"> • City of Saint John Department of Planning and Development • City of Saint John Department of Building and Technical Services

1.2.2 Final EIA Guidelines

1.2.2.1 Scope of Project

The scope of the Project was defined in the Final EIA Guidelines as the construction, operation, and decommissioning of the Liquefied Natural Gas Receiving, Storage and Processing Facility. It also includes shipping of Orimulsion[®] as specified below. No other cargoes are contemplated at this time. The potential for larger volumes of LNG and Orimulsion[®] is unlikely at this time. The quantity of LNG is reflective of current and future market potential/opportunities and NB Power Corporation is the only prospective customer for Orimulsion[®] at this time.

The Project that is assessed pursuant to Section 15(1) of *CEAA* and its description in this EIS includes:

- the shipping sea transportation profile;
- the regulatory standards to which the components of this Project will be built and operated;
- LNG and Orimulsion[®] tanker operation characteristics;
- LNG and Orimulsion[®] tanker cargo containment characteristics;
- the construction methodology and design description for the pier;
- the LNG and Orimulsion[®] offloading system (including piping and tunnel system);
- the LNG storage tanks;
- secondary containment systems;
- the regassification unit;
- the natural gas pipeline and RoW from the LNG facility to the Irving Refinery;
- Orimulsion[®] pipeline to Orimulsion[®] storage tanks (under construction and not part of the scope of the Project);
- power generating infrastructure;
- Project use and anticipated future use for the pier;
- properties of the LNG and Orimulsion[®], its behaviour in the marine environment and its behaviour in the case of an accidental release, whether at sea or on land;
- required land and marine exclusion zones;
- transportation, handling and storage systems of any additives and by-products used in the Project;
- the construction methodology and design description for the regassification unit;
- the layout of the road, laydown, storage and office infrastructure;
- upsets of environmental control equipment from operations of the facility, which may change the nature of emissions and/or effluent;
- infrastructure used to prevent and/or control releases of LNG/vaporized natural gas from storage tanks, delivery or distribution pipelines, as well as infrastructure used to prevent and/or control releases of Orimulsion[®] from delivery or distribution pipelines;
- fire prevention and control equipment; and
- the history of LNG and general information on existing infrastructure around the world.

The proposed location for the pier is on the existing Canaport facility and monobuoy. Crude oil tankers have been arriving at the existing facility since 1970. Existing protocols administered by CCG, Transport Canada, and Saint John Harbour Pilots will be used to direct and control marine traffic associated with the Project.

A Marine Terminal Manual will be developed by Irving in consultation with CCG, Transport Canada, and Saint John Harbour Pilots prior to Project commencement to ensure the safe conduct of tanker traffic and unloading.

1.2.2.2 Scope of Assessment

The scope of the assessment includes the factors to be considered pursuant to both the *Clean Environment Act* and *CEAA*. The EIS provides a detailed study of potential environmental effects, the significance of the adverse environmental effects and identification of procedures that may be used to mitigate these. The Project includes a multi-purpose pier, an LNG storage and regasification facility, a natural gas pipeline to the existing Irving Refinery in Saint John, and an Orimulsion[®] pipeline from the pier to storage tanks at the Canaport facility. The EIS also identifies methods of optimizing positive environmental effects and reducing adverse environmental effects resulting from the Project, and considers recommended follow-up.

The factors that were considered in the scope of the assessment were:

- alternatives to the Project;
- alternative means of carrying out the Project;
- description of the existing environment;
- environmental effects, including effects of Accidents, Malfunctions and Unplanned Events, and cumulative environmental effects;
- mitigation measures;
- significance of residual effects;
- public consultation;
- monitoring and follow-up programs; and
- the capacity of renewable resources that are likely to be significantly affected by the Project.

To provide a focus for the environmental assessment, environmental components of concern, commonly referred to as Valued Environmental Components (VECs), were identified and a rationale was provided. The VECs were based on the issues raised in the Guidelines, and were proposed in the TOR.

Pursuant to Section 16 of *CEAA*, the EIS considers the potential environmental effects of the proposed Project within the spatial and temporal boundaries which encompass the periods and areas during and within which the Project may potentially interact with, and have an environmental effect on, components of

the environment. The EIS describes the boundaries of the study in time and space used in the evaluation of environmental effects for each of the VECs. The temporal boundaries of the study (the length of time over which Project environmental effects are anticipated to occur) reflect the construction period, the operating life of the Project, and the geographical extent of any potential environmental effects that may remain beyond the operating period, including decommissioning and any potential accidents or malfunctions.

1.2.3 EIA Terms of Reference

This EIS was prepared in accordance with the TOR, September 22, 2003, the supplemental correspondence from the TRC, and comments from stakeholder consultations received up to and including January 6, 2004. The TOR have been submitted for TRC review. This EIS addresses the items and issues identified in the Final EIA Guidelines (Table 1.3)

1.3 Guidelines Table of Concordance

A Table of Concordance for Guideline and TOR items, and this EIS is provided in Table 1.3.

Table 1.3 Table of Concordance for the EIS with Final EIA Guidelines

Final Guideline Sections	Elements of Section Requiring Description	Location within the EIS
1.0	Introduction	N/A
1.1	Purpose of the Guidelines	N/A
1.2	Federal/Provincial EIA Process	1.2.1
1.3	Definitions	Glossary
2.0	Methodological Approach to EIA	3.1
2.1	Methodological approach for the identification of the potential environmental effects and the significance of these environmental effects and the identification of the procedures that may be used to mitigate these effects	3.1.4 identification of potential environmental effects 3.1.5 identification of mitigation methodology 3.1.6 – prediction of significance methodology
	Methodological approach for determining methods of optimizing positive environmental effects and minimizing negative environmental effects	3.1.5
	Selection of the Valued Environmental Components	3.1.1 – scoping of issues and selection of VECs 3.2.6 – a list of VECs 3.2 – use of consultation in VEC selection process
	A description of how the proponent will seek public knowledge	3.2.1.1 – methodology for gathering of public information 3.2.2 – description of public consultation methods

Table 1.3 Table of Concordance for the EIS with Final EIA Guidelines

Final Guideline Sections	Elements of Section Requiring Description	Location within the EIS
2.2	Methodological approach for defining the temporal boundaries of the study for each Valued Environmental Component	3.1.2.1 – general methodology 5.1-5.15 – specific approach for each VEC
	Methodological approach for defining the spatial boundaries of the study for each Valued Environmental Component	3.1.2.1 – general methodology 5.1-5.15 – specific approach for each VEC
2.3	Methodological approach for the prediction of indirect environmental effects to the environment by the Project	3.1.4 – identification of environmental effects 3.1.5 – evaluation of environmental effects
	Methodological approach for the prediction of cumulative environmental effects to the environment by the Project	3.1.4 – identification of environmental effects 3.1.5 – evaluation of environmental effects
	Methodological approach for the prediction of environmental effects caused by accidents or malfunction on the environment by the Project	3.1.5
	Methodological approach for the prediction of the environmental effects the environment may have on the Project	5.15
	Methodological approach for determining the significance of the environmental effects	3.1.6
2.4	Cumulative Environmental Effects - Methodological approach for the prediction of cumulative environmental effects to the environment by the Project	3.1.4 – identification of environmental effects 3.1.5 – evaluation of environmental effects
2.5	Methodological approach for determining general and specific measures that are technically and economically feasible	2.3.2.1 – alternative sites 2.3.3.2 – alternative access roads 2.3.4 – alternative shipping corridors and anchorages 3.1.5 – methodology for selection of alternative mitigation
	Methodological approach for providing contingency measures designed to address potential accidents and malfunctions	2.9.1, 2.9.3
	Methodological approach for developing an outline for contingency plans	2.9.1, 2.9.3
	Methodological approach for the consideration of compensation mechanisms to be used in the event that any accidental or residual environmental effects occurs	3.1.5
2.6	Methodological approach for the development of a well-defined program of monitoring and follow-up regarding the potential environmental effects of the Project	3.1.7, 2.9.6, 2.9.7, Section 5
	Process by which documentation from similar operations elsewhere in the world will be provided	2.1
2.7	Public Consultation	3.2
	Methodological approach to providing public consultation	3.2.1.1 – general methodology 3.2.2.1 – open house methodology
	Methodological approach to the use of various media to engage public consultation	3.2.1.1 – use of various media in general methodology 3.2.2.1 – use of various media in open house methodology
	Methodological approach to providing stakeholder consultation	3.2.2.3 – use of liaison committees 3.2.4 – general methodology
	Methodological approach to the use of input from consultations in the EIA	3.2.5
2.8	Terms of Reference	All Sections
	A description of the methods proposed for carrying out the EIA	Sections 3, 4 and 5
	A description of the means by which Irving Limited will consult with the public during the course of the EIA	3.2
	A cross-referenced index with the Terms of Reference content and issues of the Final Guidelines	This table of concordance

Table 1.3 Table of Concordance for the EIS with Final EIA Guidelines

Final Guideline Sections	Elements of Section Requiring Description	Location within the EIS
3.0	Conduct of the Study and Content of Report	All Sections
	A glossary defining technical words and acronyms	Glossary
	A complete and accurate description of the Project from planning through decommissioning	Section 2
	Aspects of the Project that have a reasonable probability of occurrence and that could be expected to affect the environment	Section 2 and 5
	An identification of how potential environmental and human-made hazards have influenced the design and operation of the Project	2.4.3, 5.15
3.1	Project Description Scope of Project	Section 2, 1.2.2.1
	The shipping sea transportation profile	2.6.2
	The regulatory standards to which the components of the Project will be built and operated	2.4.3.1
	LNG ship operation characteristics	2.4.4
	LNG ship cargo containment characteristics	2.4.4.3
	The construction methodology and design description for the multi-purpose marine pier	2.5.4.1, 2.4.6
	The LNG offloading system (including piping and tunnel system)	2.4.6, 2.5.5.2
	The LNG storage tanks	2.4.7, 2.5.5.3
	Secondary containment systems	2.4.5, 2.4.6, 2.4.7
	The regassification unit	2.4.8
	The natural gas pipeline and corridor selected from the marine terminal to the Refinery	2.4.10, 2.3.3.1
	Power generating infrastructure	2.4.13
	Project use and anticipated future use for the multi-purpose pier	2.4.6
	Properties of LNG, its behaviour in the marine environment and its behaviour in the case of an accident release, whether at sea or on land	2.4.2, 2.8.1
	Required land and marine exclusion zones	2.6.2, 2.6.4.3.1, 2.8.2
	Transportation, handling and storage systems of any additives and by-products used in the Project	2.5.9
	The construction methodology and design description for the regassification unit	2.5.5.4, 2.4.8
	The layout of the road, laydown storage and office infrastructure	2.4.1, 2.5.5.9
	Upsets of environmental control equipment from operations of the facility, which may change the nature of emissions and/or effluent	2.8
	Infrastructure used to prevent and/or control releases of LNG/vaporized natural gas from storage tanks, delivery or distribution pipelines	2.4.4, 2.4.6, 2.4.7, 2.4.8, 2.4.10
Fire prevention and control equipment	2.4.9	
The history of LNG and general information on existing infrastructure around the world	2.1	
3.2	Project Rationale	2.2
3.3	Identification and Analysis of Alternatives	2.3
	The null or "do nothing" alternative	2.3.1
	Technically and economically feasible alternative locations	2.3.2.1
	Assessment of the various available dispersion models	2.3.6
	Alternative means of carrying out the Project	2.3.4
	Alternative regassification technology	2.3.3.4
Alternative shipping corridors	2.3.5	
3.4	Description of the Existing Environment	Section 4 and 5
3.5	Cross-Referenced Index - The content and issues outlined in the Final Guidelines as addressed in the EIS	1.3
4.0	Potential environmental effects of specific issues	Section 5

Table 1.3 Table of Concordance for the EIS with Final EIA Guidelines

Final Guideline Sections	Elements of Section Requiring Description	Location within the EIS
4.1	Environmental effects on air quality	5.1
	The environmental effects of the Project-related air emissions and noise on air quality by phase and region	5.1
	The environmental effects of transportation on the Red Head Road to and from the Canaport on air quality	5.1, 5.9, 5.12
	Cumulative environmental effects of the Project within the Saint John airshed	5.1
	Cumulative environmental effects of the Project on greenhouse gas levels at the provincial and national scale	5.1
4.2	Environmental effects on the marine environment	5.3
	Environmental effects of the Project on marine fish and fish habitat	5.3
	Environmental effects of the Project on marine migratory birds	5.6
	Environmental effects of the Project on local fisheries resource harvesting	5.7
	Environmental effects of the Project on the marine environment caused by increased vessel traffic	5.3
	Environmental effects of the Project on the marine environment caused by the marine terminal	5.3
	Environmental effects of the Project on marine water quality	5.3
	Environmental effects of the Project on the benthic environment	5.3
	Evaluation of the risk to the Bay of Fundy Marine Environment from an accidental release of LNG	5.3
The procedures for the development and the anticipated components of a spill prevention, spill response plan and contingency plan for the marine environment	2.9.1, 2.9.3, 3.1.5	
4.3	Environmental effects on freshwater fish and fish habitat	5.4
4.4	Environmental effects on species of special conservation concern	5.3, 5.4, 5.5, 5.6
	Environmental effects on marine species of special conservation concern	5.3
	Environmental effects on terrestrial species of special conservation concern	5.5
4.5	Environmental effects on terrestrial and wetland environments	5.5
4.6	Environmental effects on migratory birds	5.6
4.7	Environmental effects on groundwater resources – the potential for interference with domestic wells during the construction phase	5.2
4.8	Environmental effects of navigation on safety	5.8 – on public safety 5.14 on vessel safety
	An explanation of the management of vessel traffic in the Bay of Fundy	2.6.2, 5.14
	Environmental effects of increased ship traffic on existing ship traffic in the Bay of Fundy and Saint John Harbour	2.5.4.2 – construction vessel traffic 2.6.2 – marine traffic 5.14
4.9	Environmental effects on the Road Transportation Network	5.12

Table 1.3 Table of Concordance for the EIS with Final EIA Guidelines

Final Guideline Sections	Elements of Section Requiring Description	Location within the EIS
4.10	Socio-economic environmental effects	5.8 – environmental effects on Public Health and Safety 5.9 – environmental effects on Land Use 5.10 – environmental effects on Archaeological and Heritage Resources 5.11 – environmental effects on Aboriginal Land and Resource Use 5.12 – environmental effects on the Road Transportation Network 5.13 – environmental effects on Labour and Economy
	Environmental effects of the Project on labour and economy at the regional and provincial scale	5.13
	Environmental effects of the Project on land use in the immediate vicinity of the Project	5.9
	Environmental effects of the Project on local property values and insurance rates	5.9
4.11	Environmental effects on public health and safety	5.8
	The risk to the local community and the City of Saint John in the event of a Project related accident	5.8
	The methodology and assumptions used in defining the worst-case scenario situations	2.8.1, 5.8
	Identify and propose mitigation for circumstances that may result in increased environmental effects on human health	5.8
	Description of important malfunction and accident events (including fire) that have a reasonable probability of occurring	2.8
	Itemized list of past abnormal LNG operations, accidents and spills relevant to the EIA	2.8.1
	The anticipated components of a spill prevention, detection, response, and contingency plan for operation of the facility	2.9.1, 2.9.3
	The anticipated components of and emergency response plan for construction and operation	2.9.1, 2.9.3
	The key components relevant to safety during the construction activity	2.9.8
	Sources and characteristics of any potential risks to workers during construction and subsequent operation	5.8
	Procedures by which the infrastructure and management of the facility will minimize risk	2.4.3, 2.4.9, 2.6.4, 2.6.5, 2.9
	Key components relevant to the management of malfunctions and accidents that may occur during construction or subsequent operation	2.9, 2.9.1, 2.9.3, 2.9.7, 2.9.8
	Safety qualification / certification required for construction and operation of the Project	2.9.7
4.12	Environmental effects on Aboriginal land and resource use	5.11
	Environmental effects of natural hazards on the Project	5.15
4.13	The sensitivity of the Project to variations in meteorological conditions	5.15
	The importance of the environmental effects of natural hazards on the Project	5.15
	Environmental effects of potential sea level rise on the Project	5.15
	The source and accuracy of the climate data used to make environmental effect predictions	5.1

6.0 CONCLUSION AND RECOMMENDATION

In accordance with the requirements of Sections 16 (1) and (2) of *CEAA* and the Terms of Reference, this environmental impact assessment includes:

- a discussion of the alternatives to the Project and the alternative means of carrying out the Project that are technically and economically feasible and the environmental effects of any such alternative means;
- a description of the proposed Project including the purpose and need, the proposed facilities and activities, and the potential malfunctions or accidental events that may occur in connection with the Project;
- a summary of consultation mechanisms and issues raised during consultation (*i.e.*, issues scoping) as well as a description of the methodological approach to the environmental impact assessment;
- an assessment of the environmental effects of the proposed Project for each of the VECs, including cumulative environmental effects and the significance of the effects;
- an assessment of the effects of the environment on the Project;
- recommendations for measures to mitigate any significant adverse environmental effects; and
- recommendations for monitoring and follow-up.

Based on the results of the environmental impact assessment, it is concluded that the Project will not result in likely significant adverse environmental effects.