

FISHERIES AND OCEANS
CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)
SCREENING ENVIRONMENTAL ASSESSMENT REPORT

GENERAL INFORMATION

1. EA Title: Strait Of Canso - Liquefied Natural Gas (LNG) Marine Wharf	
2. Referral Receive Date: October 31, 2003	3. EA Start Date: November 24, 2003
4. HRTS Ref/File No.: 03-HMAR-MA7-000-000448	5. FEAI/CEAR No.: 03-01-61
6. DFO File No.: 03-FCR-448	7. Provincial File No.: 40100-30-63
8. Other No.: NWP 8200-03-2355	
9. Proponent: Access Northeast Energy Inc.	
10. Other Contacts: Jacques Whitford Environment Limited	11. Role: Preparation of environmental assessment documentation.
12. Source (and Federal Environmental Assessment Coordinator): Canadian Environmental Assessment Agency	
13. Project Description:	
<p>The overall development proposal, submitted by Access Northeast Energy Inc. includes the construction and operation of a Liquefied Natural Gas (LNG) terminal and associated facilities, which will be built in two phases. Phase I involves the construction and operation of an approximately 7.5 million-ton-per-annum (mtpa) capacity LNG terminal with a natural gas sendout capacity of 1,000 million standard cubic feet per day (MMscfd). Phase II provides for the future expansion of the sendout capacity to 1,500 MMscfd (approximately 11.3 mtpa).</p> <p>The overall development proposal is undergoing a joint federal-provincial environmental assessment. The portion of the proposal that is undergoing a federal environmental assessment has been scoped to include all undertakings which will take place in relation to the marine wharf, and does not include the LNG storage and gasification facility. This decision is based on the fact that the only physical work requiring a federal approval, contained in the Law List Regulations, is the marine wharf. Therefore, this Screening Report deals only with the marine portion of the LNG proposal.</p> <p><u>Construction of the Marine Wharf</u></p> <p>The marine wharf is composed of a trestle, to be built 180 meters directly out from shore, and a 366 meter jetty situated perpendicular to the trestle. The complete wharf structure is similar to a "T" in shape. The jetty provides the ship berth and unloading facilities.</p> <p>The trestle will provide the structural support for the cryogenic piping and utility lines from the shore to the berth, and will also accommodate one lane for light vehicles. The trestle will be an open structure composed of steel or concrete elements (dependant upon final contractor selection) resembling a highway bridge. Fill material will not be necessary for this method of construction. The trestle will likely have two steel pipe piles per bent with a concrete or structural steel cap forming a frame. The pipe piles will be on the order of 30 to 36 inches in diameter and approximately 31 to 37 meters long. Precast/prestressed concrete beams or steel girders will be used to span the 18.2 meter distance between the beams. A cast in place concrete deck will provide containment for the piping as well as form a roadway.</p>	

The marine jetty design will consist of concrete decking on drilled steel tubular pile structures and will accommodate LNG vessels with a capacity of up to 250,000 m³, with a ship draft of approximately 13.5 meters. The berth will include an unloading platform supporting the liquid product transfer lines and unloading arms. The berth will also include four breasting dolphins equipped with fenders and quick release hooks. Five mooring dolphins equipped with quick release hooks will also be provided to safely moor the vessel. Walkways will also be included between the dolphins and the platform for personnel access. A gangway will ease the transfer of personnel between the vessel and the berth structures. An electronic berthing aid system will be installed at the berth to assist berthing operations.

A total of four marine unloading arms will be installed on the unloading platform, two for liquid delivery to the storage tanks, one liquid or vapour (hybrid) arm, and one for use in vapour return to the ship. The unloading arms are designed with swivel joints to provide the required range of movement between the ship and the shore connections. Each arm will be fitted with powered emergency release coupling valves to protect the arm and avoid spillage of its liquid contents. Each arm will be operated by a hydraulic system and a counterbalance weight will be provided to reduce the deadweight of the arm on the shipside connection and to reduce the power required to manoeuvre the arm into position.

Construction of the marine terminal is expected to take place between March 2005 and January 2006.

The final stage of construction is the start-up and commissioning of the facilities. With completion of all control systems testing, the units will be purged of oxygen using nitrogen gas. Various terminal units will then be checked for pressure leaks via pressurizing and depressurizing over approximately three days. The terminal will then begin cool-down operations using either LNG or liquid nitrogen.

Discussions are ongoing with Nova Scotia Power Inc. (NSP) to establish a closed loop system that would circulate waste heated seawater from the NSP cooling water discharge at the nearby Point Tupper power plant to the LNG facility for use in the vaporization process. The alternative option is to have an independent system that uses seawater to provide the heat needed for this process through a seawater intake and discharge system at the LNG facility. This would involve the construction of a seawater intake in association with the 180 meter trestle. The outfall structure would be constructed perpendicular to the shoreline, east of the marine wharf. It would run 60 meters out from the shoreline.

Operation of the Marine Wharf

Once commissioned, the facility will begin receiving LNG from several export facilities world-wide. LNG will be transported to the receiving terminal via specialized LNG ships. A wide range of LNG ships are available to bring LNG from various parts of the world.

The marine facilities are sited to provide the LNG ship with an uncongested, ice-free seaward approach, which is unrestricted from tidal and most weather related concerns. The jetty is to be located at 18 meters depth with a wide turning basin and unrestricted egress from the terminal. The proposed terminal is located in an area of compulsory pilotage under the federal *Pilotage Act*, Atlantic Pilotage Authority Regulations; this means that pilots are required for navigation into the Strait.

LNG is unloaded by the ship's pumps at an average rate of 12,000 m³/hr. Based on the unloading rate and preliminary shipping studies, there will be approximately 70 to 135 ships per year. The unloading system is designed to unload the entire contents of a ship within 12 to 14 hours. During the unloading mode of operation, LNG is transferred from the LNG ship to the onshore LNG storage tanks via cryogenic lines located along the trestle. Onboard ship pumps will deliver the LNG to the LNG storage tanks. During normal terminal operation (when no ship is unloading), a 10-inch line will re-circulate LNG to the main header at the end of the pier. Project operations are expected to begin in late 2007. The operational life of the project could continue indefinitely with good operation and maintenance.

Maintenance of the Marine Wharf

Materials for the marine wharf will be brought to the site pre-painted. The marine wharf will be provided with an impressed cathodic protection system to reduce corrosion. After some 10-15 years there may be a need for painting. In this case temporary tenting and confinement will be provided to catch sand blasting debris and paint over spray. The use of anti-fouling agents is not anticipated.

Decommissioning of the Marine Wharf

The terminal will be designed for a life span of 20 years. As is common in the industry, facility life could be extended beyond 20 years with appropriate technical and maintenance activities. Decommissioning and abandonment of the terminal facilities will be undertaken in accordance with the regulatory requirements applicable at the time of such activities. In the event the facility is dismantled/decommissioned, an abandonment plan and, if required, a site restoration plan, will be developed.

14. Locations Details:

The facility is to be located on the Strait of Canso, in the Point Tupper/Bear Head Industrial Park, near Port Hawkesbury, Richmond County, Cape Breton, Nova Scotia.

15. Environmental Description:

Biophysical Environment

Climate\Air Quality\Noise

The prevailing winds in the area are westerly to northwesterly in the colder months and south to southwesterly in the warmer months. The winds from the northwest quadrant tend to be stronger than winds originating from the southwest. Chedabucto Bay is open to easterly gales that bring large waves ashore. Due to the effects of friction over land, easterly winds at sea shift to northeasterlies and weaken along this indented coastline.

Fog, freezing spray or precipitation and other adverse weather can pose risks for marine vessels. Visibility of one-half nautical mile or less is common for the Chedabucto Bay area in all seasons. However, reduced visibility due to dense fog is more prevalent in late spring and early summer, when warm moist air from the south flows over relatively cold coastal waters.

Freezing spray occurs when ocean spray caused by high winds, heavy seas and even the motion of the vessel itself spreads over the ship's superstructure and freezes on contact. It is usually associated with north westerly or northerly winds blowing off the land. Freezing spray can impede the safe work aboard a vessel. The potential for moderate or greater vessel icing from freezing spray is highest in February. The rate of ice build-up is strongly influenced by the vessel design, speed and direction of travel.

The air quality on mainland Nova Scotia is generally very good. It is likely that air quality in the area falls within the desirable objectives of the federal classification and well within provincial limits. In general, Bear Head has excellent air quality.

In general, the results of the background noise study show that the existing acoustic environment in the area is well within acceptable levels for environmental exposures. The existing noise levels at the site depict a typical rural or undeveloped area where the primary influence on sound is local weather and natural activity.

Physical Oceanography

The main results of the investigation of physical oceanography in the study area are that tidal currents at the site are weak (approximately 0.04 m/s); non tidal currents may be many times stronger than the tidal currents, typically 10 to 20 times the strength of the tidal currents in the Strait; offshore swell is greatly attenuated before reaching the site; local waves are fetch limited; and ice is not an issue at any time during the year.

Marine Benthic Habitat and Communities

The marine benthic habitat in the area is typical for open water nearshore environments in Nova Scotia. The type of bottom and associated organisms were similar between study transects as long as water depths remained similar. The deep water of the Strait limits the area of productive shallow water habitat to narrow zones alongside each shore.

The intertidal zone is characterized by a substrate consisting of pebbles, cobbles and the occasional boulder. A variety of plant species inhabit the intertidal zone. In shallow waters, eelgrass, a couple of species of algae, barnacles, and periwinkles are dominant.

The grain size analysis reveals that substrate in the area off Bear Head is composed primarily of gravel and sand sized sediments. The chemistry analysis of the sediment reveals relatively unimpacted sediment for all parameters (where available). All of the sediment samples from the terminal area show concentrations of various parameters below the Ocean Disposal Guidelines (Atlantic Region).

In deeper waters (greater than 12 meters), the absence of most algae species is readily evident. Light penetration to these depths is minimal. In these areas it is easier to observe the substrate composition and epifaunal organisms that reside in the area. Polychaete holes were observed as well as rock crabs, lobster, scallops and a few sea stars. The bottom substrate of the transect areas between the 3 and 12 meters contained the most diversified collection of organisms. The benthic zone to 18.3 meters in the Strait of Canso has been described as probable lobster and sea urchin habitat.

Key species in this region include Atlantic cod, haddock, pollock, American plaice, white hake, Atlantic herring, lobster, sea scallop, rock crab, urchin, and soft-shell clam.

Coastal and offshore regions of Nova Scotia attract a wide variety of marine mammal species throughout the year. There are twenty-one species of cetaceans (i.e., dolphins, porpoises, and whales) and six species of pinnipeds (i.e., seals) which have been recorded from the waters around Nova Scotia, however, many of these species are only occasional visitors to the area.

Migratory Birds

Three species of neritic seabirds (i.e., those species that spend most of their time in coastal waters and occasionally forage in inland areas), the Common Tern, Double-crested Cormorant and Great Cormorant, have been recorded as nesting in the general vicinity of the terminal site and the marine approaches to the terminal (i.e., Chedabucto Bay and Strait of Canso). Herring Gulls and Great Black-backed Gulls nest at variety of locations within the study area, particularly along the south shore of Chedabucto Bay. No data regarding colony locations and abundance is available for gull species for this area. Black Guillemots have not been recorded as breeding in the study area.

Only one species of pelagic seabird (i.e., species that are typically found out of sight of land and return to coastal waters only to breed), the Leach's Storm-petrel, is known to breed in the study area. A Leach's Storm-petrel colony is located in the vicinity of Canso.

Socio-economic Environment

Marine Transportation (e.g., shipping, boating)

The Strait of Canso is one of the busiest ports on the Atlantic coast of Canada. Navigation in this area consists primarily of commercial traffic ranging in size from small fishing boats to the largest Very Large Crude Carriers (VLCCs), including various bulk carriers. This is a mandatory high-level vessel traffic zone, with a reporting system of various calling-in points. Pilotage is mandatory.

There is also a fair amount of recreational traffic, including sailboats and power boats, that use the waterway in the vicinity of the marine wharf, as well as transiting the strait to and from the Canso Causeway. The Nova Scotia Sport and Recreation Commission has no record of provincial canoe or sea kayaking in the Point Tupper and Bear Head Area. The closest described sea kayaking route, to the project site, is located around Isle Madame and Janvrin Island. One boat tour operator started operation in 2003, taking tourists down the coastline through the summer months until October.

Safety/Security (Marine)

The Strait of Canso area is a relatively low crime region and is not generally considered a target of organized terror groups, however, in light of recent terrorist related global events, legislation has been invoked in an effort to reduce risks and limit potential threats to marine facilities. On July 1, 2004, the International Maritime Organization's (IMO) International Ship and Port Facility Security (ISPS) Code took effect. The IMO is a specialized agency of the United Nations that focuses on the improvement of safety at sea and the prevention of pollution from vessels.

Transport Canada has implemented the ISPS Code through the Marine Transportation Security Regulations, which apply to commercial vessels of 500 tons (gross tonnage) or more, or carrying more than 12 passengers and travelling between countries, and marine facilities and ports serving such vessels. The regulations require such things as the completion of security assessments and security plans, and the designation of security officers.

Commercial Fishery

Examples of groundfish species fished in the area are Atlantic halibut, cod, and pollock. Examples of pelagic species fished in the area are gaspereau, bluefin tuna, eel, herring, mackerel and smelt. Several species of crabs, lobster, scallop, sea urchin, shrimp, clams and squid are also fished in the area. Invertebrate fisheries contributed most substantially to the overall commercial fishery in the period from 1998 to 2002.

Recreational Fishery

There are reports of sport diving for scallops in the Strait area and sport fishing for trout and salmon. It is likely there is some very minimal recreational fishing for mackerel close to the project site in Bear Island Cove. However, most recreational mackerel fishing takes place off the Canso Causeway and local wharves and piers around Port Hawkesbury, as well as southeast of the tip of Bear Head.

Aboriginal Peoples Land and Resource Use

A Mi'kmaw Knowledge Study to identify any First Nations land or resource use potentially affected by project development was commissioned. A number of current uses have been identified within a five kilometer radius of the site including, food and commercial fishing and firewood harvesting.

16. Trigger: Law List

17. Rationale for Trigger: Construction of a marine wharf.

18. Legislation & Sections: *Navigable Waters Protection Act*, Section 5(1)(a)

19. Lead Responsible Authority (RA): Transport Canada – Navigable Waters Protection Program

20. Other RAs: No other RAs

21. CEEA Trigger: No other CEEA triggers

22. Expert Federal Authorities:

Environment Canada, Natural Resources Canada,
National Energy Board, Fisheries and Oceans Canada

23. Area(s) of Interest: Regarding environmental effects associated with the project.

24. Transport Canada expert contacts:

Navigable Waters Protection Program
Marine Safety (Compliance and Enforcement)

25. Other Federal Agencies and Provincial/Regional/Municipal Governments Consulted:

Federal Agencies (Identify specific agencies):

Provincial Agencies: Nova Scotia Provincial Department of Environment and Labour, Service Nova Scotia and Municipal Relations, Nova Scotia Department of Natural Resources, Nova Scotia Department of Transportation and Public Works, Nova Scotia Department of Tourism, Culture & Heritage, Nova Scotia Department of Agriculture and Fisheries, Nova Scotia Department of Health

Regional/Municipal Governments:

Interagency Review Processes
(Identify specific committees):

First Nations:

Non-Government Organizations:

Public:

Other:

ENVIRONMENTAL ASSESSMENT

26. Scope of Project:

The scope of the project includes the construction, operation, maintenance and decommissioning of the marine wharf. The main components of the wharf include the trestle and jetty.

27. Scope of Assessment:

The following are mandatory factors to be considered for a screening as described in section 16(1) of *CEAA*:

- (a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- (b) the significance of the effects referred to in paragraph (a);
- (c) comments from the public that are received in accordance with this Act and the regulations;
- (d) measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project; and
- (e) any other matter relevant to the screening, comprehensive study, mediation or assessment by a review panel, such as the need for the project and alternatives to the project, that the responsible authority or, except in the case of a screening, the Minister after consulting with the responsible authority, may require to be considered.

Environmental effects are defined in *CEAA*, in respect of a project, as “(a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species as those terms are defined in section 2(1) of the *Species at Risk Act*, (b) any effect of any change referred to in paragraph (a) on health and socioeconomic conditions, on physical and cultural heritage, the current use of lands and resources for traditional purposes by aboriginal persons, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or (c) any change to the project that may be caused by the environment”.

The factors to be considered and the scope of those factors can be found on the Canadian Environmental Assessment Registry internet site under the Document List Area. They are included in the document named “Scoping Document for the Proposed Bear Head LNG Terminal, Bear Head, Nova Scotia.” Only those factors related to the marine wharf will be included in the federal environmental assessment. The other factors relate to the provincial environmental assessment.

28. Public Consultation: Was it considered? Yes No

The Responsible Authority, Transport Canada, has decided that, in accordance with *CEAA*, section 18(3), the Screening Report will be provided to the public for review, for a period of two weeks, before a decision is made on whether or not the project will be allowed to proceed.

Note: The Provincial Environmental Impact Statement underwent a 30-day public review period and both the document and the comments submitted were used in the Screening.

29. Environmental Effects and Significance: See attached tables.

30. Mitigation Measures: See attached tables.

31. Follow-up Program under *CEAA*: None required.

32. Other Monitoring and Compliance Requirements: The proponent must conduct benthic monitoring in relation to the *Fisheries Act*. Compliance monitoring will be carried out in relation to required mitigation measures.

TABLE 1. POTENTIAL CHANGES IN THE BIO-PHYSICAL ENVIRONMENT CAUSED BY THE PROJECT
(Significance: 0-None, 1-Insignificant, 2-Significant, 3-Unknown, 4-Positive)

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Air Quality	<ul style="list-style-type: none"> Emissions from project equipment Emissions from vessels associated with the construction, operation and use of the LNG wharf Sand blasting and painting the LNG wharf during maintenance 	<ul style="list-style-type: none"> Reduce local ambient air quality Contribute to greenhouse gases Release of paint and sandblasting materials into the environment 	1	None required	1	None required
Marine Benthic Habitat and Communities	<ul style="list-style-type: none"> Site clearing for on-land facilities Increased vessel traffic associated with the construction, operation and use of the LNG wharf Construction and use of a seawater discharge structure Operation of the LNG wharf (e.g., surface runoff) Construction of pilings Sand blasting and painting the LNG wharf during maintenance 	<ul style="list-style-type: none"> Degradation of marine habitat through deposition of sediment on the seafloor (e.g., sediments from land) or redistribution of marine sediments (e.g., propwash, placement of pilings) Destruction of benthic habitat (e.g., footprint of pilings, outfall structure) Disturbance of benthic species due to noise, in-water activities, etc. Degradation of sediment quality Increase in habitat due to reef and refuge effects Release of paint and sandblasting materials into the environment 	2	<ul style="list-style-type: none"> Erosion and sediment control structures will be established before vegetation clearing begins on land Silt curtains will be used, where feasible If construction of an outfall is required, the proponent will submit detailed plans to DFO for review and approval before any work proceeds A Stormwater Management Plan will be developed and implemented Monitoring of the benthic environment, in relation to the <i>Fisheries Act</i>, will be undertaken by the proponent. Remedial action will be undertaken by the proponent, if deemed necessary. See Follow Up Monitoring to the right. Temporary tenting and confinement will be provided to catch sand blasting debris and paint over-spray 	1	<p>Following construction, the marine structure and surrounding area will be monitored by conducting an underwater video survey. This will take place after the site has been allowed to stabilize and benthic communities have established. The underwater video will be undertaken on a yearly basis to verify predictions and make comparisons with the baseline data. The video will be submitted to the DFO Area Habitat Coordinator on a yearly basis. The duration of the monitoring program will be established in consultation with DFO.</p> <p>Compliance monitoring to be carried out regarding mitigation measures.</p>

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Fish Habitat (other than benthic habitat)	<ul style="list-style-type: none"> • Site clearing for on-land facilities • Increased vessel traffic associated with the construction, operation and use of the LNG wharf • Construction of a seawater discharge structure • Operation of the LNG wharf (e.g., surface runoff) • Construction of pilings • Sand blasting and painting the LNG wharf during maintenance 	<ul style="list-style-type: none"> • Degradation of water quality (e.g., higher sediment levels, chemicals, temperature differences) • Loss of habitat (e.g., due to pilings) • Release of paint and sandblasting materials into the environment 	2	<ul style="list-style-type: none"> • Erosion and sediment control structures will be established before vegetation clearing begins on land • Silt curtains will be used, where feasible • If construction of an outfall is required, the proponent will submit detailed plans to DFO for review and approval before any work proceeds • A Stormwater Management Plan will be developed and implemented • Temporary tenting and confinement will be provided to catch sand blasting debris and paint over-spray 	1	Compliance monitoring to be carried out regarding mitigation measures.
Marine Fish	<ul style="list-style-type: none"> • Site clearing for on-land facilities • Increased vessel traffic associated with the construction, operation and use of the LNG wharf • Construction of a seawater discharge structure • Operation of the LNG wharf (e.g., surface runoff) • Construction of pilings 	<ul style="list-style-type: none"> • Adverse effects on health due to degradation of water quality • Disturbance of fish species due to structures, light, noise, etc.; may result in avoidance of the area 	2	<ul style="list-style-type: none"> • Pile driving will be conducted in late fall and winter, to avoid sensitive periods, and will only last 60 days • Erosion and sediment control structures will be established before vegetation clearing begins on land • Silt curtains will be used, where feasible • If construction of an outfall is required, the proponent will submit detailed plans to DFO for review and approval before any work proceeds • A Stormwater Management Plan will be developed and implemented 	1	Compliance monitoring to be carried out regarding mitigation measures.

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Marine Mammals	<ul style="list-style-type: none"> • Construction and operation of the LNG wharf • Increased vessel traffic associated with the construction, operation and use of the LNG wharf 	<ul style="list-style-type: none"> • Increased stress to marine mammals due to structures, lights, noise, vessel traffic, etc.; may result in avoidance of the area • Interference with communications between marine mammals • Increased risk of collisions with vessels 	2	<ul style="list-style-type: none"> • Pile driving will be conducted in late fall and winter, to avoid sensitive periods, and will only last 60 days • Pile driving will be halted when a whale is sighted within 500 meters of the LNG wharf • Standard vessel operation procedures will be followed including avoidance measures 	1	Compliance monitoring to be carried out regarding mitigation measures.
Migratory Birds and Bird Habitat	<ul style="list-style-type: none"> • Construction and operation of the LNG wharf • Increased vessel traffic associated with the construction, operation and use of the LNG wharf • Sand blasting and painting the LNG wharf during maintenance 	<ul style="list-style-type: none"> • Disturbance of birds due to structures, lights, noise, vessel traffic, etc. • Degradation of water quality (e.g., higher sediment levels, chemicals, temperature differences) affecting such things as quality of food, ability to catch food • Release of paint and sandblasting materials into the environment 	2	<ul style="list-style-type: none"> • Low intensity lighting and shielded directional lighting will be installed wherever feasible • Mortality monitoring plans will be developed by the proponent in consultation with Environment Canada • Should it be determined that significant lighting related mortalities are occurring, the Canadian Wildlife Service will be consulted to discuss mitigative strategies • Temporary tenting and confinement will be provided to catch sand blasting debris and paint over-spray 	1	Compliance monitoring to be carried out regarding mitigation measures.
Species at Risk	<ul style="list-style-type: none"> • No effects on species at risk, within the scope of the project, were identified by the proponent. 	Not applicable	0	Not applicable	0	Not applicable

TABLE 2. POTENTIAL CHANGES IN THE SOCIO-ECONOMIC ENVIRONMENT RESULTING FROM CHANGES TO THE BIO-PHYSICAL ENVIRONMENT
 (Significance: 0-None, 1-Insignificant, 2-Significant, 3-Unknown, 4-Positive)

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Fisheries	<ul style="list-style-type: none"> • Construction and operation activities affecting fish\fish habitat • Increased vessel traffic associated with the construction, operation and use of the LNG wharf • Presence of the LNG wharf and docked ships 	<ul style="list-style-type: none"> • Loss of access to fishing grounds (e.g., lobster and mackerel) • Interference with fishing activities, and possible damage to gear or vessels, due to vessel traffic • Effects on fisheries related to adverse effects on fish\fish habitat 	2	<ul style="list-style-type: none"> • Proponent will establish communications and dialogue with the fishing industry to resolve issues • Should construction activities result in gear or vessel damage, compensation will be available as established in the Fisheries Compensation Plan which will be developed • Construction will be targeted for late fall or winter, to avoid sensitive periods • See mitigation related to effects on marine benthic habitat and communities, fish habitat and marine fish as outlined in each respective section of the table 	1	Compliance monitoring to be carried out regarding mitigation measures.
Current Use of Lands and Resources for Traditional Purposes by Aboriginal Peoples	<ul style="list-style-type: none"> • Construction and operation of the LNG wharf 	<ul style="list-style-type: none"> • Loss of access to fishing grounds • Interference with fishing activities, and possible damage to gear or vessels, due to vessel traffic • Effects on fisheries related to adverse effects on fish\fish habitat 	2	<ul style="list-style-type: none"> • Proponent will establish communications and dialogue with the fishing industry to resolve issues • Should construction activities result in gear or vessel damage, compensation will be available as established in the Fisheries Compensation Plan which will be developed • Construction will be targeted for late fall or winter, to avoid sensitive periods • See mitigation related to effects on marine benthic habitat and communities, fish habitat and marine fish as outlined in each respective section of the table 	1	Compliance monitoring to be carried out regarding mitigation measures.

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Marine Transportation (e.g., shipping, boating,) - specifically that which would take place within the immediate vicinity of the site of the proposed LNG wharf	<ul style="list-style-type: none"> Construction and operation of the LNG wharf Presence of the LNG wharf 	<ul style="list-style-type: none"> Increased risk of collisions with other vessels, the LNG wharf or floating debris Interference with vessel movement 	2	<ul style="list-style-type: none"> All work vessels will be subject to the standards and regulations made under the <i>Canada Shipping Act</i> Movement of vessels will be subject to the "Practices and Procedures for Public Harbours", made under the <i>Canada Marine Act</i> When approaching the LNG terminal, vessels will be under the jurisdiction of the Canadian Coast Guard and mandatory pilotage requirements LNG carriers entering the approaches to the Strait of Canso will be operated by a crew qualified, at least, to the requirements of the IMO Standards for Training and Certification of Watchkeeper Work(s) and associated equipment will be removed from the waterway at the owner's expense, in the event that the operation of the work(s) is terminated. <p>Mitigation measures will be included as Conditions of the <i>Navigable Waters Protection Act</i> Approval, to ensure that safe navigation can continue in the area. Possible examples of these conditions are as follows:</p> <ul style="list-style-type: none"> Construction material and debris are not allowed to become waterborne All temporary structures, piles, false works and debris are to be completely removed from the waterway Any materials or equipment used in construction must be marked in accordance with the "Collision Regulations" of the <i>Canada Shipping Act</i> when located on or in the waterway <p>Specifications will be provided on the requirement for lights on the LNG wharf</p>	1	Compliance monitoring to be carried out regarding mitigation measures.
Physical and Cultural Heritage	No effects on heritage resources, within the scope of the project, were identified by the proponent.	Not applicable	0	Not applicable	0	Not applicable

Valued Ecosystem Component (VEC)	Project Activity	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Structures, Sites or Things of Historical, Archaeological, Paleontological or Architectural Significance	No effects on archaeological resources, within the scope of the project, were identified by the proponent.	Not applicable	0	Not applicable	0	Not applicable
Safety/security	<ul style="list-style-type: none"> Acts of terrorism or sabotage associated with the construction or operation of the LNG wharf 	<ul style="list-style-type: none"> Damage to LNG Wharf Risk to public safety 	2	<ul style="list-style-type: none"> The proponent must comply with Transport Canada's new marine security requirements under the International Maritime Organization's (IMO) International Ship and Port Facility Security (ISPS) Code. The requirements under the ISPS code are being implemented through Canada's Marine Transportation Security Regulations, as well as through amendments to the International Convention for the Safety of Life at Sea, 1974. Under the Marine Transportation Security Regulations, the proponent is required to prepare a <i>Port Facility Security Assessment</i> and develop and implement a <i>Facility Site Security Plan</i> prior to the operation of the Marine Terminal. 	1	Compliance monitoring to be carried out regarding mitigation measures.

TABLE 3. EFFECTS RESULTING FROM ACCIDENTS AND MALFUNCTIONS
(Significance: 0-None, 1-Insignificant, 2-Significant, 3-Unknown, 4-Positive)

Accident or Malfunction	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
Failure of sediment and erosion control structures	<ul style="list-style-type: none"> • Degradation of marine water quality 	2	<ul style="list-style-type: none"> • The proponent will conduct site inspections, in particular before and after heavy precipitation events, and will take remedial action when necessary 	1	Compliance monitoring to be carried out regarding mitigation measures.
Fires and explosions	<ul style="list-style-type: none"> • Injuring or killing of fish, birds, etc. • Degradation of marine habitat due to use of fire fighting chemicals, spilled materials, etc. • Degradation of air quality • Risks to human health and safety 	2	<ul style="list-style-type: none"> • Facilities and vessels will be designed for safety and reliability • Emergency Response and Contingency Plans, and a site specific Spill Management Plan, will be developed. In association with these plans, equipment will be maintained, as required, and personnel will be trained. Emergency Response and Contingency Plans will be developed for oiled birds, and contamination of bird habitat, regardless of the size of the spill. • A Fisheries Compensation Plan will be developed 	1	Compliance monitoring to be carried out regarding mitigation measures.
Marine vessel traffic accidents and related cargo spills	<ul style="list-style-type: none"> • Injuring or killing of fish, birds, etc. • Degradation of marine habitat due to spilled materials • Damage to fisheries boats and equipment, loss of jobs 	2	<ul style="list-style-type: none"> • When approaching the LNG terminal, vessels will be under the jurisdiction of the Canadian Coast Guard and mandatory pilotage requirements • The LNG wharf is sited in a relatively sheltered area • The jetty is designed to withstand identified forces during berthing • The ship is designed for protection during navigation, berthing, unberthing, and while docked and unloading • A safety zone will be established around the LNG wharf • Emergency Response and Contingency Plans, and a site specific Spill Management Plan, will be developed. In association with these plans, equipment will be maintained, as required, and personnel will be trained. Emergency Response and Contingency Plans will be developed for oiled birds, and contamination of bird habitat, regardless of the size of the spill • A Fisheries Compensation Plan will be developed 	1	Compliance monitoring to be carried out regarding mitigation measures.

Accident or Malfunction	Potential Effects	Significance Before Mitigation	Mitigation Measures	Significance of Residual Effects	Follow Up Monitoring
LNG Release (from the LNG wharf or docked vessels) See also "Fires and explosions"	<ul style="list-style-type: none"> • Effects relate to vapour dispersion and thermal radiation • Asphyxiation or frostbite may occur in the immediate vicinity of the vapour cloud • Water surface may freeze but would melt quickly 	2	<ul style="list-style-type: none"> • When approaching the LNG terminal, vessels will be under the jurisdiction of the Canadian Coast Guard and mandatory pilotage requirements • The LNG wharf is sited in a relatively sheltered area • The jetty is designed to withstand identified forces during berthing • The ship is designed for protection during navigation, berthing, unberthing, and while docked and unloading • A safety zone will be established around the LNG wharf • Process instruments can give an early indication of malfunctions • Pipes carrying LNG will have catch basins and sumps that can accommodate full volume of flow for ten minutes • A variety of safety and security systems will be built into the facility design • Emergency Response and Contingency Plans will be developed. In association with these plans, equipment will be maintained, as required, and personnel will be trained. 	1	Compliance monitoring to be carried out regarding mitigation measures.
Hazardous materials spills	<ul style="list-style-type: none"> • Injuring or killing of fish, birds, etc. • Degradation of marine habitat 	2	<ul style="list-style-type: none"> • A Fisheries Compensation Plan will be developed • Emergency Response and Contingency Plans, and a site specific Spill Management Plan, will be developed. In association with these plans, equipment will be maintained, as required, and personnel will be trained. Emergency Response and Contingency Plans will be developed for oiled birds, and contamination of bird habitat, regardless of the size of the spill. • Staff will be trained in the storage, handling and transportation of hazardous materials • Machinery/equipment will be kept in good working order and will be monitored for leaks 	1	Compliance monitoring to be carried out regarding mitigation measures.

TABLE 4. CHANGES TO THE PROJECT CAUSED BY THE ENVIRONMENT**(Significance: 0-None, 1-Insignificant, 2-Significant, 3-Unknown, 4-Positive)**

Environmental Factor	Potential Effects on the Project	Significance Before Mitigation	Mitigation	Significance of Residual Effects	Follow Up Monitoring
Extreme weather conditions	Damage to the LNG wharf and vessels	2	<ul style="list-style-type: none">• The LNG wharf will be fully weather proofed and designed to withstand a full range of climatic conditions including severe rain, wind and waves• LNG ships will only be allowed to berth or unberth during certain specified weather conditions	1	None required
Sea ice	There is little ice in the Strait due to the Canso Causeway	1	None required	1	None required
Climate change and sea level rise	Design of the structures incorporates an adequate factor of safety to deal with anticipated changes to the sea level	1	None required	1	None required
Seismic activity	There is no history of soil liquefaction or land movement in the area	1	None required	1	None required

TABLE 5. CUMULATIVE ENVIRONMENTAL EFFECTS
(Significance: 0-None, 1-Insignificant, 2-Significant, 3-Unknown, 4-Positive)

Valued Ecosystem Component (VEC)	Other Projects/Activities	Potential Effects	Significance Before Mitigation	Mitigation	Significance of Residual Effects	Follow Up Monitoring
Air quality	<ul style="list-style-type: none"> • Nova Scotia Power Terminal (NSPT) – construction and operation • On-land portion of the LNG Terminal (LNGT) – operation • M&NP pipeline - construction • Marine transportation 	Combination of dust and vehicle emissions from NSPT and M&NP, dust and operation emissions from LNGT, air emissions related to marine transportation and the construction and operation of the LNG wharf will result in a combined degradation of air quality	1	None required	1	None required
Water quality	<ul style="list-style-type: none"> • On-land portion of the LNG Terminal (LNGT) – construction 	Combination of silt/sediment entering the marine environment due to the LNGT combined with increased sediment levels in the marine environment due to the construction of the LNG wharf will result in further degradation of water quality	2	See mitigation measures under Marine Benthic Habitat and Communities, Fish Habitat, and Marine Fish. Similar measures will be undertaken for the LNGT (e.g., sedimentation and erosion control structures)	1	None required
Noise	<ul style="list-style-type: none"> • On-land portion of the LNG Terminal (LNGT) – construction and operation 	The noise and lights from LNGT will combine with the noise and lights associated with the construction and operation of the LNG wharf	2	See mitigation measures under Marine Fish, Marine Mammals, and Migratory Birds and Habitat. Similar measures will be undertaken for the LNGT (e.g., special lighting).	1	None required

Valued Ecosystem Component (VEC)	Other Projects/Activities	Potential Effects	Significance Before Mitigation	Mitigation	Significance of Residual Effects	Follow Up Monitoring
Marine Transportation (i.e., shipping)	<ul style="list-style-type: none"> • On-land portion of the LNG Terminal (LNGT) – construction • M&NP pipeline - construction 	Increased vessel traffic associated with LNGT and the M&NP pipeline	2	See mitigation measures in Table 2, Marine Transportation	1	None required

SCREENING CONCLUSION

33. Conclusion on significance of environmental effects:

In accordance with subsection 16(1)(b) of CEAA, it has been determined that the project is not likely to cause significant adverse environmental effects.

34. Conclusion Date: July 12, 2004

35. Rationale for Conclusion: All potentially significant adverse environmental effects can be mitigated.

RECOMMENDATION BY FISHERIES AND OCEANS CANADA

Prepared by:

Melanie MacLean

Date:

July 12, 2004

Name:

Melanie MacLean

Title:

Habitat Assessment Biologist

Reviewed by:

Marci Penney-Ferguson

Date:

July 12, 2004

Name:

Marci Penney-Ferguson

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Head, Regulatory Unit

Recommended by:

Paul Boudreau

Date:

12/7/04

Name:

Paul Boudreau

Title:

Manager, Habitat Management Division

Recommended by:

Faith Scattolon

Date:

13.07.04

Name:

Faith Scattolon

Title:

Director, Oceans and Habitat Branch

SCREENING CONCLUSION (continued)

33. Conclusion on significance of environmental effects:

In accordance with subsection 16(1)(b) of CEAA, it has been determined that the project is not likely to cause significant adverse environmental effects.

34. Conclusion Date: July 12, 2004

35. Rationale for Conclusion: All potentially significant adverse environmental effects can be mitigated.

RECOMMENDATION OF SCREENING CONCLUSION BY TRANSPORT CANADA

Reviewed by: Carl Ripley

Date: July 12, 2004

Name: Carl Ripley

Title: Environmental Officer

Recommended by: Jim Cormier

Date: July 12, 2004

Name: Jim Cormier

Title: Regional Manager, Environmental Affairs



Decision following a Screening conducted by Fisheries and Oceans Canada pursuant to Section 20 (1) of the Canadian Environmental Assessment Act

Since March 29, 2004, Transport Canada (TC) is responsible for the *Navigable Waters Protection Act* (NWPA). Under a protocol between TC and Fisheries and Oceans Canada (DFO), the preparation of a screening report required under the *Canadian Environmental Assessment Act* (CEAA) for a NWPA triggered project, has been delegated to DFO for the transition period starting March 29, 2004 and ending October 1, 2004. This form shall be used to document TC's decision following TC's review of the screening report.

Project: Bear Head LNG

Transport Canada screening decision in accordance with subsection 20(1) of CEAA:

- Taking into account any mitigation measures that TC considers appropriate, the project is not likely to cause significant adverse environmental effects; the project may proceed with application of the mitigation measures specified in this report.
- The project is likely to cause significant adverse environmental effects that cannot be justified. The project shall not proceed.
- The project is referred to the Minister of the Environment for referral to a mediator or a review panel because:
 - it is uncertain as to whether the project is likely to cause significant adverse environmental effects; or
 - the project is likely to cause significant adverse environmental effects that can be justified; or
 - of public concern.

Report reviewed and decision recommended by:

Date: Aug 10/04

Name - Title: ^{For} Carl Ripley, Environmental Officer

Decision approved by:

Date: Aug 10/04

Name - Title: ^{For} Jim Cormier - Regional Manager - Environmental Affairs

Decision received by:

Date: Aug 9/04

Name - Title: Navigable Waters Protection Program