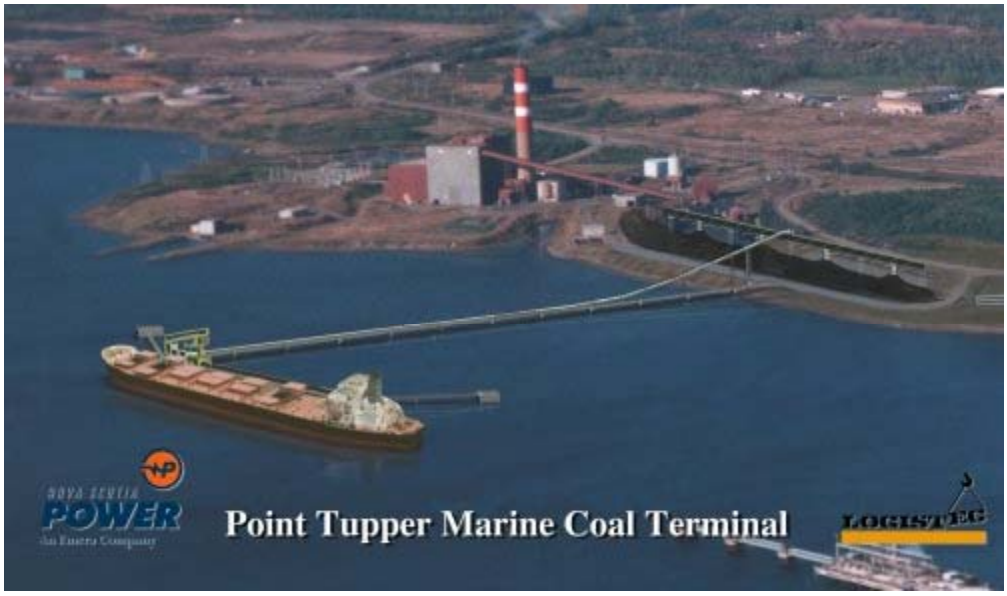
REGISTRATION DOCUMENT
by
Nova Scotia Power Incorporated
in support of
REGISTRATION of POINT TUPPER MARINE COAL TERMINAL
Under the Nova Scotia Environment Act

December 5th, 2003



December 5th, 2003

Cheryl Benjamin
Nova Scotia Environment & Labour
5151 Terminal Road, 5th Floor
P O. Box 697
Halifax, Nova Scotia
B3J 2T8

Dear Ms. Benjamin:

I am writing to formally Register the Point Tupper Marine Coal Terminal project as a Class 1 Registration under the Nova Scotia Environment Act. In a letter dated September 10th, 2003 from the Minister of Environment & Labour, the Honourable Kerry Morash, we were informed that the project will be considered an expansion of the existing generating station at Point Tupper and designated a Class 1 undertaking. We have carried out public consultation for this project consisting of a two-day Open House in October and have been working with provincial and federal departments since the spring of 2003. We now formally Register the project. I have provided the following items consistent with the regulatory requirements:

- 22 copies of the covering letter, Registration form and supporting report
- A cheque to cover the $8400 registration fee
- A CD with a pdf copy of the submission

We will be advertising in a local and provincial paper within 7 days of Registration to give public notice of the registration and we will provide formal proof of the advertisement. In addition, two sites have been selected and approved by you for public viewing of the registration materials.

If you have any further questions or requirements regarding this project please contact me at your convenience.

Yours truly

(Original signed by Terry Toner)

Terry Toner
Senior Manager - Environment

REGISTRATION
in accordance with the
Environmental Assessment Regulations
of the Nova Scotia Environment Act

Name of Undertaking:	Point Tupper Marine Coal Terminal
Location of Undertaking:	Point Tupper Generating Station, Nova Scotia
Proponent:	Nova Scotia Power Incorporated PO Box 910 Halifax, NS, B3J 2W5 Chief Operating Officer - Chris Huskilson General Manager, Power Production - James Taylor Contact Person - Terry Toner, Sr. Manager, Environment
Nature of Undertaking:	Nova Scotia Power Incorporated and Logistec Stevedoring Atlantic Incorporated are working to construct a Marine Coal Terminal at the NSPI Point Tupper Generating Station on the Strait of Canso. This project will consist of two components; a marine terminal and a land-based coal storage facility. This facility would serve as the offshore coal unloading and storage site for NSPI's generating stations, primarily for the Point Tupper and Trenton Stations.
Purpose of Undertaking:	The project is being constructed to meet the electricity needs of the province and provide flexibility of operation.
Construction Schedule:	The project will be built with the following general dates. Start Construction - March 2004 Commission Terminal - March 2005 Begin Operation - March 2005
Operation Schedule:	Operation will begin as soon as construction and commissioning are complete.
Undertaking Description:	Information in document entitled: "Registration Document by Nova Scotia Power Inc. in support of Registration of Point Tupper Marine Coal Terminal under the N. S. Environment Act"
Required Approvals:	Release from NS Environmental Assessment Process
Public Funding:	There is no public funding for this project.

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EXECUTIVE SUMMARY

Nova Scotia Power Incorporated (NSPI) and Logistec Stevedoring Atlantic Incorporated are working to construct a marine coal terminal at the NSPI Point Tupper Generating Station on the Strait of Canso. This project will consist of two components; a marine terminal and a land-based coal storage facility. This facility would serve as the offshore coal unloading and storage site for NSPI's generating stations, primarily for the Point Tupper and Trenton Stations. The facility is planned for construction in 2004 and 2005 with commissioning planned for March of 2005.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1 INTRODUCTION

Nova Scotia Power Incorporated (NSPI) and Logistec Stevedoring Atlantic Incorporated are working to construct a marine coal terminal at the NSPI Point Tupper Generating Station on the Strait of Canso. This project will consist of two components; a marine terminal and a land-based coal storage and rail shipping facility. This facility would serve as the offshore coal unloading and storage site for NSPI's generating stations, primarily for the Point Tupper and Trenton Stations. The terminal would be built to accommodate vessels up to Panamax size.

Nova Scotia Power is the primary operating subsidiary of Emera Inc., a diversified energy company, based in Halifax, Nova Scotia, with 550,000 customers and $4.0 billion in assets. Logistec Stevedoring Atlantic Corporation provides cargo-handling services to the marine and industrial sectors. Its core business is stevedoring, the loading and unloading of ships using specialized equipment and experienced personnel. Logistec also operates terminals, warehousing cargo while in transit to and from intermodal connections, including the loading and unloading of trucks and railway cars.

It is the intention of NSPI that Logistec build, own, and operate the proposed marine coal terminal. NSPI will lease the lands and associated water lots to Logistec and enter into a long-term service agreement. This agreement will allow NSPI to focus on its core business of electricity production while utilizing Logistec's expertise in stevedoring and solid fuel handling.

NSPI is coordinating and managing the Environmental Assessment of the project through the Provincial and Federal Regulatory Agencies. Logistec, by building, owning, and operating the proposed terminal, will hold the Nova Scotia Department of Environment and Labour Environmental Construction and Operating Approvals.

2 PROJECT DESCRIPTION

2.1 Nature of Undertaking

The proposed marine terminal at Point Tupper in the Strait of Canso (see Figure 1) will be utilized as the primary coal-handling terminal for the NSPI Point Tupper and Trenton Generating Stations. The fuel received will consist mainly of coal, but will also include petroleum coke. To simplify the text in this document, the word coal will be used to include both coal and petroleum coke.

This terminal will be designed to accommodate Panamax Belted Self Unloading, Grab, and Bulk Vessels. The structure will consist of a berthing facility supporting unloading hoppers and an unloading crane. This berthing facility will be connected to shore via a pier, which will support a hooded in-haul conveyor. This inhaul conveyor will transport coal from the berthing facility to a shuttle conveyor, through which coal will be piled on the new and existing coal storage pad. A coal load out area adjacent to the new storage pad will allow the loading of coal into rail cars and subsequent shipping out of coal by train.

2.2 Size and Scope of Undertaking

As stated previously, the terminal will be designed to unload Panamax size vessels (approximately 70,000 dead weight tonnage (DWT)). The berthing facility will be approximately 180 m long and 16 m wide, with mooring dolphins attached. A crane installed on rails will be used to unload bulk type vessels. Two movable receiving hoppers, each with a capacity of 3,000 tonnes/hour will be placed on the berthing structure. Navigational lights and general lighting will be provided.

The pier connecting the berthing facility to shore will extend out approximately 450 m and be located at a water depth of approximately 18 m. A trestle-supported structure will carry the conveyor system that carries the coal from the dock to the shore discharge equipment. The inhaul conveyor will be designed for a rate of 3,000 tonnes of coal per hour.

The hooded inhaul conveyor system will load out to a reversible shuttle conveyor located at an elevated gallery with a top belt elevation of approximately 35 meters. The reversible shuttle conveyor will build a 70,000 tonne pile for the loading of rail cars, primarily destined for Trenton Generating Station. The same shuttle conveyor will build a 50,000 tonne pile, when operated in the opposite direction, to serve the Point Tupper Generating station. Coal will be stacked on a storage pad approximately 300 m long and 75 m wide (see Figure 2). The existing rail tracks will be relocated to make room for the new storage pad. The coal storage pad will have a drainage system directing water to a treatment facility. An additional capacity of 44,000 tonnes of coal will be provided at the existing coal storage area of the Point Tupper Generating Station by this new facility.

From the storage pads, the coal will be moved by heavy equipment to the Point Tupper Generating Station reclaim hoppers or transported by rail car to the Trenton Generating Station. The tracks will have a capacity of 10 rail cars adjacent to the coal storage pad. A 6-meter asphalt apron will be provided along the area of the rail car loading section.

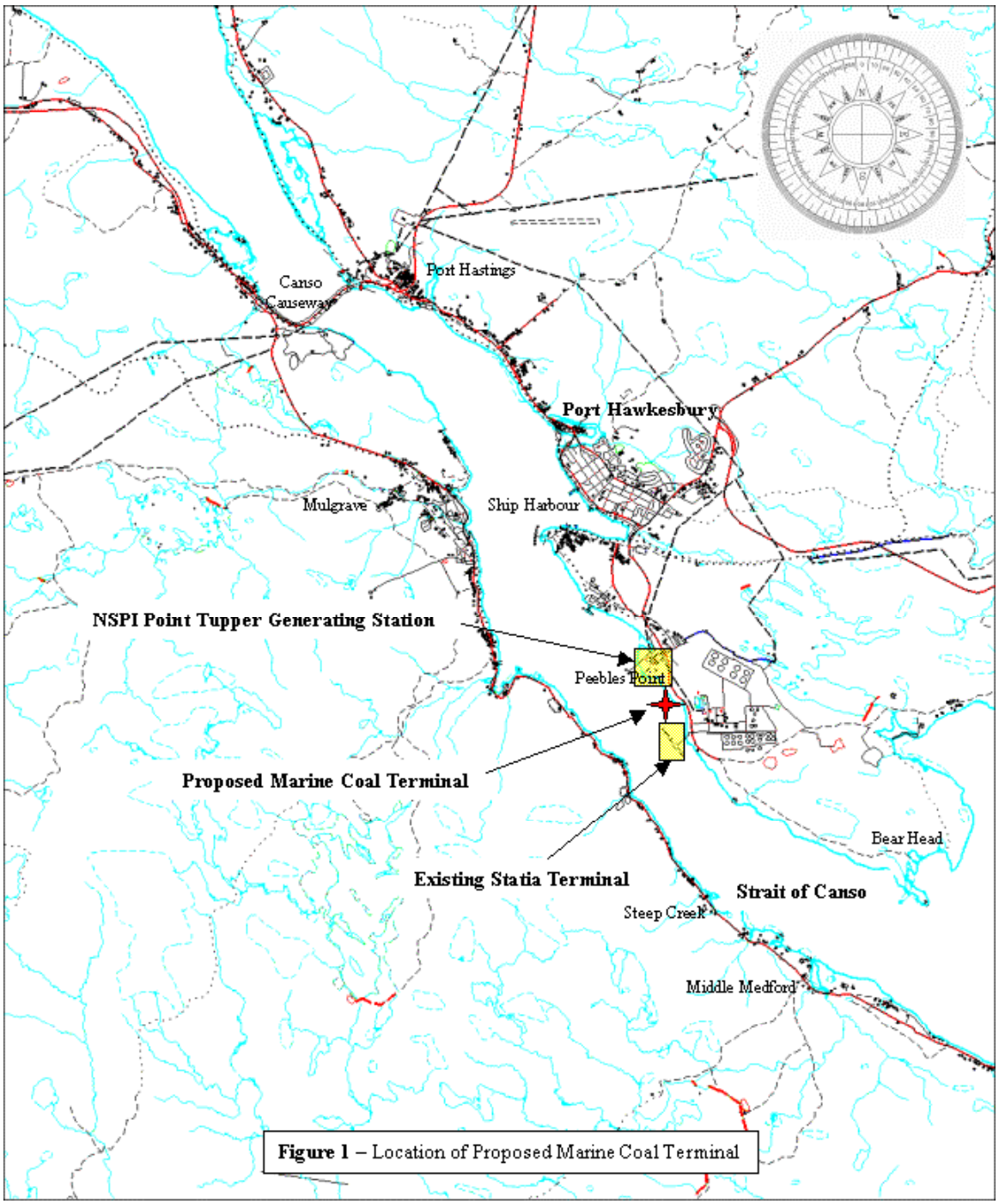

Figure 1 – Location of Proposed Marine Coal Terminal

2.3 Existing and Future Land Use of Area

The proposed site for this project is located in the Point Tupper Heavy Industrial Park. The Municipality of the County of Richmond has zoned this area for a marine terminal such as the one NSPI and Logistec are proposing to build. A significant portion of this zoning process took place in the late 1990's. To support this process, a development plan was prepared for the area. This plan reviewed past, current, and potential future uses of the Strait. It clearly demonstrated that the Strait of Canso has a long history of seaport activity and is an ideal location for continued growth in this industry. The results of this zoning process were the creation of the West Richmond Municipal Planning Strategy and the subsequent revising of the existing Land Use By-law.

2.4 Purpose and Need of Undertaking

NSPI has four coal fired generating stations, Lingan, Point Aconi, Point Tupper, and Trenton. As a result of the closure of the DEVCO mines in the late 1990's, it became necessary for NSPI to import coal to the province to supply these stations. Two ports have been used for this purpose, the International Pier in Sydney and the Strait of Canso "Superport". The International Pier serves as the primary unloading point for fuel destined for Point Aconi and Lingan while the Strait of Canso serves as the primary unloading point for fuel destined for Point Tupper and Trenton.

Two ports are required to supply NSPI Generating Stations for several reasons, the first being the geographical locations of the stations coupled with the cost of over-land transportation. It is much more cost efficient to land a coal vessel as close as possible to a generating station and transport overland a short distance. In this sense, the International Pier is ideal for serving Point Aconi and Lingan, while the Strait of Canso is ideal for serving Point Tupper and Trenton. The second reason two ports are required is for security of supply. If one port becomes unavailable for reasons such as ice jams, equipment malfunctions, labour issues, etc., it is critical to have a second port that can serve as a backup. Either port could service each of the Generating Stations in an emergency.

The current terminal used for unloading coal in the Strait of Canso is primarily designed for the exporting of aggregate. Coal can be and is handled at this site. However, this site was chosen to address a short-term emergency need to unload coal associated with the closure of the Cape Breton Development Corporation. A long-term more optimized facility is now required by NSPI. An evaluation of options has shown that it is more cost efficient to design and build a marine terminal, with coal in mind, at the site of an existing generating station such as Point Tupper. As well, the Point Tupper Generating station is located in an industrial park zoned for this activity. This fact coupled with the deep water and ice-free characteristics of the Strait of Canso make this an ideal location for a marine terminal.

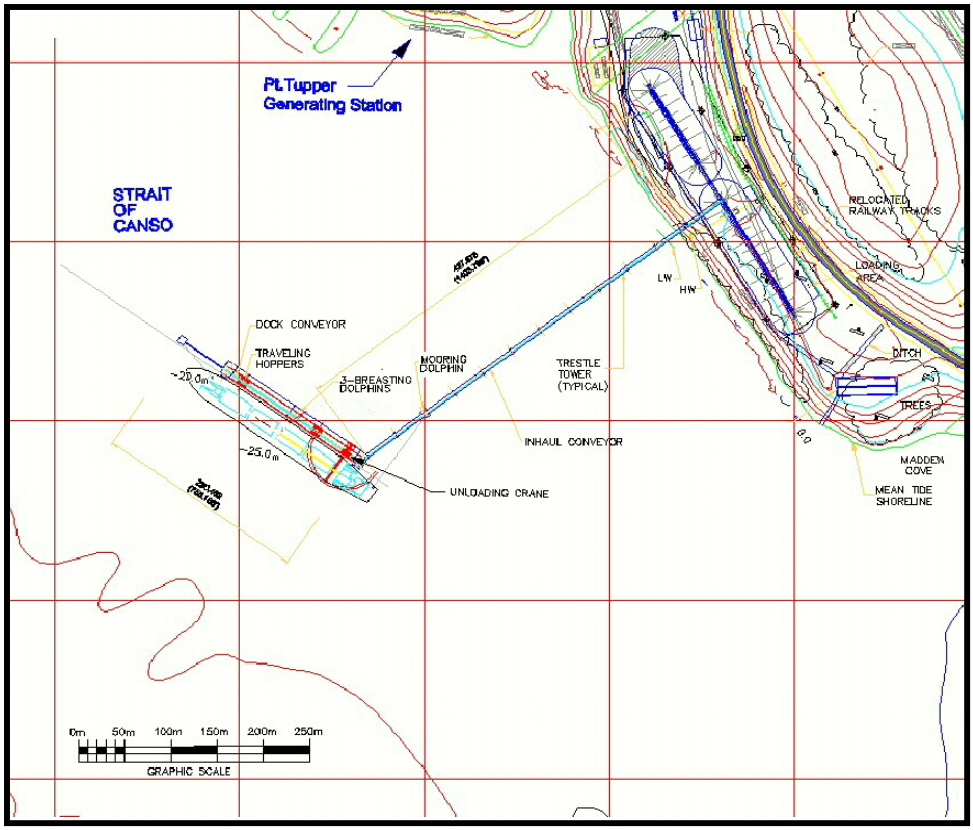

Figure 2 - Marine Terminal General Arrangement Drawing Excerpt

Figure 3 - Marine Terminal Artists Rendering (Rendering may differ slightly from Figure 2)

2.5 Construction and Operation Schedules

Discussions regarding the Environmental Assessment process for this project began in the spring of 2003. As a result of these discussions, information gathering has been focused in the areas of highest potential environmental impact. Information has also been gathered in other areas but to a lesser degree. It is anticipated that the Environmental Assessment process can be completed early in 2004, with construction beginning soon after. Construction will continue through 2004 with commissioning and operation planned for March 2005.

2.6 Applicable Environmental Legislation

Provincial environmental legislation applicable to the project includes the *Nova Scotia Environment Act* (specifically the associated *Environmental Assessment Regulations*), the *Nova Scotia Beaches Act*, and the *Nova Scotia Species at Risk Act*. This list includes any regulations and guidelines under these Acts that are relevant to the project.

Federal environmental legislation applicable to this project includes the *Canadian Environmental Protection Act*, the *Canadian Environmental Assessment Act (including assessing the potential environmental effects of the project in the context of Sustainable Development as set forth in the Act)*, the *Fisheries Act*, the *Navigable Waters Protection Act*, the *Species at Risk Act*, and the *Migratory Birds Convention Act*. This list includes any regulations and guidelines under these Acts that are relevant to the project.

2.7 Required Environmental Approvals

An Environmental Assessment (EA) determination as well as construction and operating approvals will be required from the Nova Scotia Department of Environment and Labour (NSDEL) for the land-based portions of the project. An approval will also be required under the *Provincial Beaches Act* from the Nova Scotia Department of Natural Resources.

A determination from the Federal EA process will be required to construct the marine portion of the terminal. Responsible authorities for this process include the Habitat Division of DFO, regarding the assessment of fish habitat impacts under section 35(2) of the *Fisheries Act*; and the Coast Guard, also a division of DFO, regarding navigational considerations associated with the conveyor pier and berthing facility under Section 5(1) of the *Navigable Waters Protection Act*. Disposal at sea of dredging spoils will not take place, any disposal of this type of material will be land based. A development approval may also be required from the local Municipality.

3 ENVIRONMENTAL ASSESSMENT PROCESS

3.1 Federal Considerations

The EA process began in the spring of 2003 with initial discussions with Provincial and Federal regulatory agencies. As a result of these discussions a draft Project Description was prepared by NSPI and circulated to relevant agencies by the Canadian Environmental Assessment Agency (CEAA). After a brief review period a meeting was held at which all of the potential regulatory stakeholders were invited to attend. This meeting gave NSPI an opportunity to present the project in more detail and address any questions and concerns posed by the regulatory agencies. The feedback from this meeting was used to prepare a final Project Description that was submitted on August 14th, 2003. This project description was used by regulatory agencies to declare if they were "Responsible Authorities" for the project. Responsible Authorities are those agencies that would have to make a determination or decision based on legislation.

3.1.1 Responsible Authorities

The "Responsible Authorities" are those regulatory agencies required to make a decision or determination about the project. For the proposed terminal, the Department of Fisheries and Oceans (DFO) declared itself a Responsible Authority under the Fisheries Act; on the basis that fish habitat may be altered disrupted, or destroyed. DFO also declared itself an authority under the Navigable Waters Protection Act on the basis that the terminal would require an approval under this Act. Environment Canada, while not a Responsible Authority, declared itself an "Expert Authority", which allows that agency to maintain involvement in the process. As well, Natural Resources Canada has also declared itself an "Expert Authority". NSPI has worked with DFO to address the issues around fish habitat and navigation prior to the submission of this Environmental Assessment Document.

3.1.2 Federal Comprehensive Study Exemption for Bulk Terminal

On the Federal EA side, it was determined that the proposed terminal met the Comprehensive Study exemption requirements of Part IX Transportation, Section 28c of the Comprehensive Study List Regulations which states that a Comprehensive Study is required for:

> *"A marine terminal designed to handle vessels larger than 25 000 DWT* ***unless*** *the terminal is located on lands that are routinely and have been historically used as a marine terminal or that are designated for such use in a land-use plan that has been the subject of public consultation."*

As a component of the zoning process for the Strait of Canso that occurred in the late 1990's, consultations were held with the public as well as with Provincial and Federal

regulators. There were various avenues made available to receive input and address concerns from local residents and local community, government, and industrial leaders. These avenues included the formation of the West Richmond Area Advisory Committee (which included members of the public), public hearings, and special counsel meetings, which led to the specific zoning for this industrial park (see Appendix 2).

These public consultations, along with the history of the site, its current use by several industries as a seaport, and the current zoning laws form the basis of the decision to exempt this project from a Comprehensive Study and review the project at a screening level only.

3.2 Provincial Considerations

On the Provincial side, while there are no explicit triggers for this project under the Nova Scotia Environmental Assessment Regulations, the Minister of Environment and Labour determined that the project would be declared a Class 1 Undertaking. This decision was based on the fact that the proposed marine terminal is an extension and/or modification of an existing generating station.

3.3 Federal and Provincial Coordinated Process

Due to the fact that the Federal and Provincial EA Regulatory Agencies had determined that the project would be subject to a review under both EA processes, a coordinated process was created to gain efficiency. This process allows for the submission of a common EA document and a common approval timeline. However, while the Province and the Federal governments are coordinating the process for these portions of the assessment, they will still render separate decisions on the project according to their respective regulatory requirements.

4 PUBLIC CONSULTATION PROGRAM

4.1 West Richmond Municipality Land Use Strategy

Public consultation is a very critical component of the EA process at both the Provincial and Federal government levels. The consultation process for this project began in the late 1990's when the West Richmond Municipality decided to develop a Land Use Strategy for the area, and update the existing Land Use By-law. As part of this process, a development plan was created which identified past, current, and potential future uses of the Strait area. It clearly demonstrated that the Strait of Canso has a long history of seaport activity and is an ideal location for continued growth in this industry.

There were various avenues made available to receive input and address concerns from local residents and local community, government, and industrial leaders regarding the development of the Land Use Strategy. These avenues included the formation of the West Richmond Area Advisory Committee (which included members of the public), public hearings, and special counsel meetings (see Appendix 2). The result of this process was the zoning of the land and water lots around the Point Tupper Generating Station as "Heavy Industrial". Areas zoned as Heavy Industrial allow for the construction and operation of port facilities including bulk fuel terminals such as the proposed project.

4.2 Pre-Registration Public Consultation

An important component of pre-registration consultation was the Open House held on October 24th and 25th, 2003 in Port Hawkesbury at the Nova Scotia Community College Nautical Institute Campus. The purpose of this Open House was to provide the public with an opportunity to view information on the proposed marine terminal and share comments and views based on the proposed project. Information presented included a panel display containing information on the project components, the EA process, marine and land based environmental issues; General Arrangement and Sections/Elevation drawings of the proposed terminal; an Underwater Benthic Video Survey of the area, a digitally animated display of the terminal crane, an artists rendering of the completed project; various photos of the plant; and a panel display containing information on NSPI's partner, Logistec Stevedoring Atlantic Incorporated.

The Open House was held from 4 pm to 8 pm on Friday, October 24th, and from 10 am to 3 pm on Saturday October 25th. Notices informing the public of the Open House were placed in the Chronicle Herald, Port Hawkesbury Reporter, and on Radio 101.5 (The Hawk). Various representatives from NSPI and Logistec were available at the Open House to answer questions regarding the project. Approximately 70 people attended the event over two days representing various organizations and groups such as the West Richmond Municipality, Nova Scotia Department of Environment and Labour, Cape Breton Building Trades Union, Nova Scotia Department of Natural Resources, Stora

Enso, Canadian Coast Guard, Atlantic Pilots Authority, other industry people, and local residents.

In addition to the display materials, a questionnaire was provided for those who wished to record their comments. Of the 27 questionnaires filled out, all 27 expressed support for the project with no concerns. Examples of several comments made were:

"Excellent project based on common sense"

"Very excited, time for our ice free port to be taken advantage of"

"Good opportunity for NSPI to add different types of products and uses"

One attendee of the Open House, while generally in support of the project, had several concerns regarding navigation in and around the marine terminal. Several NSPI and Logistec representatives spent some time listening to the concerns being expressed and responded with information surrounding the process through which the terminal would receive approval under the Navigable Waters Protection Act. They explained that changes to the project were being made to accommodate navigational safety. As well, a berthing simulation would be performed at the Nautical Institute before a final design was decided on. The attendee was satisfied with this information.

Consultation also included one-on-one sessions with local municipal officials and commercial representatives in the Strait area to ensure that these community leaders had up to date information on the project and were provided a direct opportunity to discuss the project with company officials.

4.3 Environmental Assessment Requirements

The coordinated Provincial and Federal EA process has specific requirement opportunities for public consultation. They are listed below:

Registration — Registration documents placed at public places (e.g. NSDEL office) for viewing. Members of the public have opportunity to provide comment before decisions are made by regulatory agencies.

Advertising — Notices must be placed in newspapers with provincial and local circulation advising the public that a project has been registered and that documents are available for viewing at select locations.

Internet — The registration document must be placed on the NSDEL EA website for electronic access.

The result of this process is a project that has been thoroughly vetted by the public and regulatory officials.

5 ENVIRONMENTAL EFFECTS OF PROPOSED PROJECT

5.1 Major Environments

The following sections describe the major environments associated with the project location and the potential impact of the project on them. The descriptions are general in nature and capture a broad area. More specific details on the different components of the major environments can be found in subsequent sections of this document.

5.1.1 Coastal and Nearshore Physical, Biological, and Chemical

The Strait of Canso separates Cape Breton Island from mainland Nova Scotia. Historically, the differing tidal regimes of the Atlantic Ocean to the east and the Gulf of Saint Lawrence to the west resulted in strong currents through the Strait (in the order of 200 cm/sec). However, since 1955 a causeway has linked the two landmasses and stopped the flow of seawater and ice through the Strait. The harbour limit extends from Melford Point on the mainland side of the Strait across to Bear Head on the Cape Breton side (see Figure 1). There are no estuaries or wetlands in the immediate area of the proposed terminal. Water chemistry is typical for that of seawater.

The southern part of the Strait of Canso extending from the causeway to Melford Point is a NE-SW oriented 17.5 km long body of water with a width that varies from about 1.2 to 1.8 km. The entire Strait has a generally "U"-shaped cross section, with a main channel minimum depth of about 38 m off Ship Point and a maximum depth of approximately 64 m west of Madden Point. The depth in the centre of the Strait from the causeway to the harbour limit generally ranges from 38 to 60 m, with an average depth of approximately 45 m.

Prior to construction of the causeway, the swift water currents maintained a coarse substrate within the Strait. However, since completion of the causeway, the currents are weaker and the deposition of fine sediments has increased significantly. The quieter regime has allowed these fine sediments to accumulate at rates in the range of 1 to 2 mm per year (Lewis and Keen, 1990). The source of the most recent sediments south of the causeway is likely to be local. These sediments are derived from natural (e.g., eroding shorelines, small drainage systems) as well as anthropogenic sources (e.g., urban and industrial wastes). The Strait of Canso is thought to represent a drowned remnant of an old river valley (Goldthwait, 1924). There is no evidence to suggest that the origin of this feature was fault controlled (MacLean et al., 1977) (AMEC, 2003).

Based on the information above, combined with the history of seaport and industrial activity in the Strait of Canso area, and the fact that the project site is located with an industrial park zoned for this type of activity, it is the opinion of the proponent that the residual effect of the projects impact on this major environment will be insignificant. As well, the cumulative effect is expected to be insignificant.

5.1.2 Onshore Aquatic and Terrestrial

The general onshore aquatic and terrestrial environment is industrial in nature and has been for some time. The area of the new coal pad will be a combination of the existing coal pad at the Point Tupper Generating Station and a small area of industrial "greenfield" to the south of the property. Specific information pertaining to the onshore aquatic and terrestrial major environment can be found in subsequent sections of this document. However, due to the history of the site, and the fact that the project will be located in an industrial park zoned for this type of activity, it is the opinion of the proponent that the residual effect of the projects impact on this major environment will be insignificant. As well, the cumulative effect is expected to be insignificant.

5.1.3 Atmospheric

As stated previously, the project will be located in an industrial park. While there are several nearby facilities that contribute to industrial emissions in the area, the impact to the local atmosphere by the proposed terminal is expected to be insignificant due to its benign nature. This fact combined with the history of the site, and the fact that the project will be located in an industrial park zoned for this type of activity, supports the opinion of the proponent that the residual effect of the projects impact on this major environment will be insignificant. As well, the cumulative effect is expected to be insignificant.

5.1.4 Geologic

The following sections describe the geologic setting of the area, specifically surficial geology and depth to bedrock. More detailed information regarding marine sediments, benthic substrate, and other geologic components can be found in later sections of this document.

Surficial Geology

The surficial geological units within the marine environment of the study area are the Sable Island Sand and Gravel and the LaHave Clay. Several nearshore facies of these units have been identified.

The Sable Island Sand and Gravel unit primarily consists of fine- to coarse-grained sand, which grades to gravel. The definition of this unit within the Strait has been defined based on echo soundings of irregular bottom supplemented with bottom grab samples; this area could include some exposures of glacial till or bedrock, and locally may be overlain by thin patches of LaHave Clay.

The nearshore facies of this unit is composed of a highly variable mixture of gravel, sand, silt, and clay. In the Strait of Canso the gravel fraction consists principally of sandstone

pebbles, granite, and quartzite. A few fragments of coal have also been found in the gravel-sized fraction. At one locality midway along the Strait, wood fibres comprised virtually all of the gravel-sized material. The Sable Island Sand and Gravel represents a transgressive basal deposit, which in some shallow areas within the Strait is still being subjected to reworking and sediment deposition.

The extent of the LaHave Clay within the Strait of Canso is based largely on the distribution of smooth bottom from echo sounder profiles correlated with data from bottom samples. The LaHave Clay within the study area consists of clayey and sandy silt with some minor amounts of gravel, and sandy silt with some minor amounts of gravel. The LaHave Clay laps upon and partly covers deposits of the Sable Island Sand and Gravel.

Buckley et al. (1974) described sediment in the Strait of Canso as having three textural types. Clayey silt was found in 35% of all samples, while silty sand and a mixture of sand, silt, and clay were found in 44% of the bottom surface samples. Silty sand was common on the shallow banks of the eastern half of the Strait adjacent to Peebles Point, Ship Point, and Bear Head. Sand exists in only one relatively deep part of the mid-channel northwest of Point Tupper.

A unique pattern in the distribution of clayey silt occurs adjacent to Point Tupper and Peebles Point. The distribution of these fine-grained sediments suggests some correlation with the outfall areas of the industrial sites (AMEC 2003).

Depth to Bedrock

Very little data concerning the total thickness of the sedimentary units within the study area is available. One study indicates that six boreholes were positioned at Wright Point in a northwest to southeast trending line at the end of the dock, in water depths ranging from approximately 26 to 33 m deep (Public Works of Canada, 1969). Borehole data indicates that sediments in this area range between approximately 7 to 20 m thick. Soft to very soft mud was encountered as the surficial unit in all of the holes with exception of one. The thickness of the mud ranges between 1 and 5 m, when present. A dense till unit rests on top of the bedrock in all of the boreholes and ranges in thickness from 5 to 11 m, which is described as a random mixture of clay, silt, sand, gravel, and boulders.

Two of the boreholes contained other sediments that were positioned between the mud and till units. In one borehole the material is described as very soft to very stiff brown clays with some silt and fine gravel, whereas in the other borehole the material is described as a dark brown to black sand and gravel with shale fragments. The thickness of these sediments was 4.5 and 2.5 m, respectively.

Data for two boreholes positioned off the southern end of the loading berths and closer to land at the Statia Terminal were also examined. The holes were drilled in approximately 7 and 26 m of water. The surficial sediment type encountered at both borehole locations is described as being till. The shallower hole contained 3 m of till before encountering

bedrock, and the deeper hole contained approximately 5 m of till before it reached bedrock. All of the holes were drilled into bedrock.

The types of sedimentary rock that were encountered were: dark grey to black shales; red and brown shales; and dark grey limestones. These rock types are typically encountered on the eastern side of the Strait within the study area.

Some general information was also obtained from seismic and borehole studies done for the Eddy Point Common User Facility. This study was completed in 1970, but the complex was never developed. Seismic and borehole data were concentrated in the Melford Point and Eddy Point areas and several isopach maps were produced. A till unit described as being very extensive and from 0 to 30 m in thickness is situated on top of the bedrock. A unit described as silty sand and gravel generally rests on top of the till and reaches thicknesses of approximately 6 m. Pockets of soft surficial sediments were identified in nearshore areas and reached thicknesses of up to 11 m.

Surficial sediments collected for the project consisted of 20% gravel, 28% sand and 52% silt-clay sized material. The type of bedrock encountered during the boring of these holes is similar to the sedimentary rocks found onshore (AMEC 2003).

As indicated by the description of the site geological setting, there are no features present that may be significantly impacted by the proposed terminal. Therefore, it is the opinion of the proponent that the residual effect of the proposed terminal on this major environment will be insignificant. As well, the cumulative effect is expected to be insignificant.

5.2 Valued Ecosystem Components

Valued Ecosystem Components (VEC), or areas of highest potential environmental impact were identified early in the EA process. This identification was carried out by incorporating the properties and nature of the proposed facility with the ecosystem components of the local environment. Once identified, the valued ecosystem components were assessed according to the project activities, existing environmental legislation, potential effects, significance of effects before mitigation, mitigation measures, significance of residual effects, cumulative effects, and follow-up monitoring.

The following table lists the ecosystem components that were considered for the project and provides rationale as to why certain ecosystem components were chosen as VECs to undergo further assessment.

Table 1 - Ecosystem Components

Ecosystem Component	Status	Rationale
Air Quality	Non-VEC	Project construction and operating components will have negligible impact on air quality, no significant addition to emissions in area due to nature of project.
Water Quality	VEC	Site runoff has potential to impact water quality.
Sediment Quality	VEC	Marine sediment quality is not pristine, low level contamination present, there is potential for impact.
Fish and Fish Habitat	VEC	Project construction has potential to impact fish habitat, but will be compensated for.
Archaeological and Heritage Resources	VEC	Archaeological potential for site was unknown, assessment required.
Benthos	VEC	Project construction has potential to impact benthic habitat. This VEC will be incorporated with the Fish and Fish Habitat VEC.
Vegetation (plants, trees, forests, seaweed, etc.)	Non-VEC	Project site is already industrial and footprint is relatively small. However, potential for rare and endangered species is included under the Species at Risk VEC.
Amphibians and Reptiles	Non-VEC	Project site is industrial, does not contain critical habitat for amphibians and reptiles. However, potential for rare and endangered species is included under the Species at Risk VEC.
Birds and Bird Habitat	Non-VEC	Project site is industrial, does not contain critical habitat for birds. However, potential for rare and endangered species is included under Species at Risk VEC.
Species at risk, including any SARA listed species, its critical habitat or the residences of individuals of that species	VEC	Project site is industrial, however, the potential for Species at Risk requires assessment.
Groundwater Resources	VEC	Leachate from project activities has potential to impact groundwater in area.
Surface Water Resources	Non-VEC	Surface water resource supplied by Municipality. Municipality has verified that they have excess supply. Potential impact from runoff incorporated into the Water Quality VEC.

Wetlands and Wetland Functions	Non-VEC	There are no wetlands present on the project site.
Land Use (parks and other recreational uses, forestry, agriculture, mineral tenures, gravel resources, landfills, proximity to residential areas, future development plans, access management, crossing of contaminated areas)	Non-VEC	Project site is already located in an industrial park zoned for this type of activity.
Public Health (project emissions and effluents, noise, dust, fire, water supplies)	Non-VEC	Project site is already located in an industrial park zoned for this type of activity. There are no nearby residential areas.
Use of Marine Resources (commercial, recreational and subsistence fisheries and commercial fishing exclusion zones, aquaculture, commercial and recreational navigation)	VEC	Project has potential to impact navigation in Strait of Canso. Approval under Navigable Waters Act is currently being pursued. As well, potential for impact on fisheries resources in area requires assessment.
First Nations Uses	VEC	Potential for impact on First Nations uses requires assessment, this VEC will be incorporated into the Archaeological and Heritage resources and Marine Resources VECs.

The following sections describe the VECs that were chosen and outline their significance, potential environmental effects, cumulative effects and mitigation measures.

5.2.1 Fish and Fish Habitat

To properly characterize and assess fish and fish habitat in the proposed project area, AMEC Earth and Environmental Ltd were contracted to perform an assessment. As stated in Table 1, this VEC includes an assessment of the benthic zone. This assessment consisted of:

- Onshore visual inspection of the terrestrial environment and interpretation;
- Underwater benthic video survey, marine sediment samples and interpretation;
- Benthic invertebrate identification and interpretation.

Onshore Visual Inspection

The majority of the shoreline in this region is largely beach-weathered rock with limited vegetation. To the south of the power plant beyond the coal storage pad is an area of

sparse vegetation including coniferous and deciduous trees with short shrubs. This vegetative area runs along a steep embankment, which leads to the shoreline on which the terminal and pad will be constructed. Existing railway tracks and a municipal road servicing the plant fragment the vegetated area. The coal storage pad and the plant reservoir are adjacent to the forested area, southeast of the plant.

Based on field observations of the sediment and invertebrate samples, this portion of the Strait of Canso consists mainly (80%) of fine-grained sediment with a high organic matter and limited occurrences of benthic invertebrates. The substrate near the shoreline (shallow water) consisted mainly of large cobbles and beach weathered rock, whereas the remainder of the surveyed bottom is fine-grained with a high organic content (AMEC 2003).

Underwater Benthic Video

On 13 August 2003, a video habitat survey was conducted at the location of the proposed marine coal terminal at the Point Tupper power generating station. Connors Diving Services Ltd. was contracted by AMEC to perform the diving and video services.

A total of 9 transects were laid over the area to be disrupted. Those running in a northeast to southwest direction (T1, T2, T3, T4 and T5 - perpendicular to the shoreline) were approximately 450 m in length and originated at the high water mark at the beach near the cooling water outfall from the plant. Those laid in a northwest to southeast direction (T6, T7, T8 and T9 - parallel to the shoreline) were approximately 500 m in length, again originating near the outfall of process water. Refer to Figure 4 to view the location of the transect lines.

Transect and tie lines consisted of a lead line marked in 10 m increments. Locations were determined visually in the field with the use of a site drawing provided by NSPI.

The underwater surveillance of the transects and intersecting tie-line required the use of an underwater video camera operated by a CSA certified diver with the use of a surface fed communication and breathing apparatus. As much as was practical, the underwater video surveillance encompassed a span of approximately 1 m on either side of the transects and tie-line. Benthic habitat characterization involved input from the on-site diver, on-site biologist, field observations, and a review of the video surveillance (AMEC 2003).

The detailed diver observations of the transect surveys of the proposed Project area are provided in a separate Data Report, including the following information for each 10 m increment of transect line:

- Visual determination of substrate type (in order of dominance);
- Macrofaunal species identification and abundance;
- Macrofloral species identification and percent coverage.

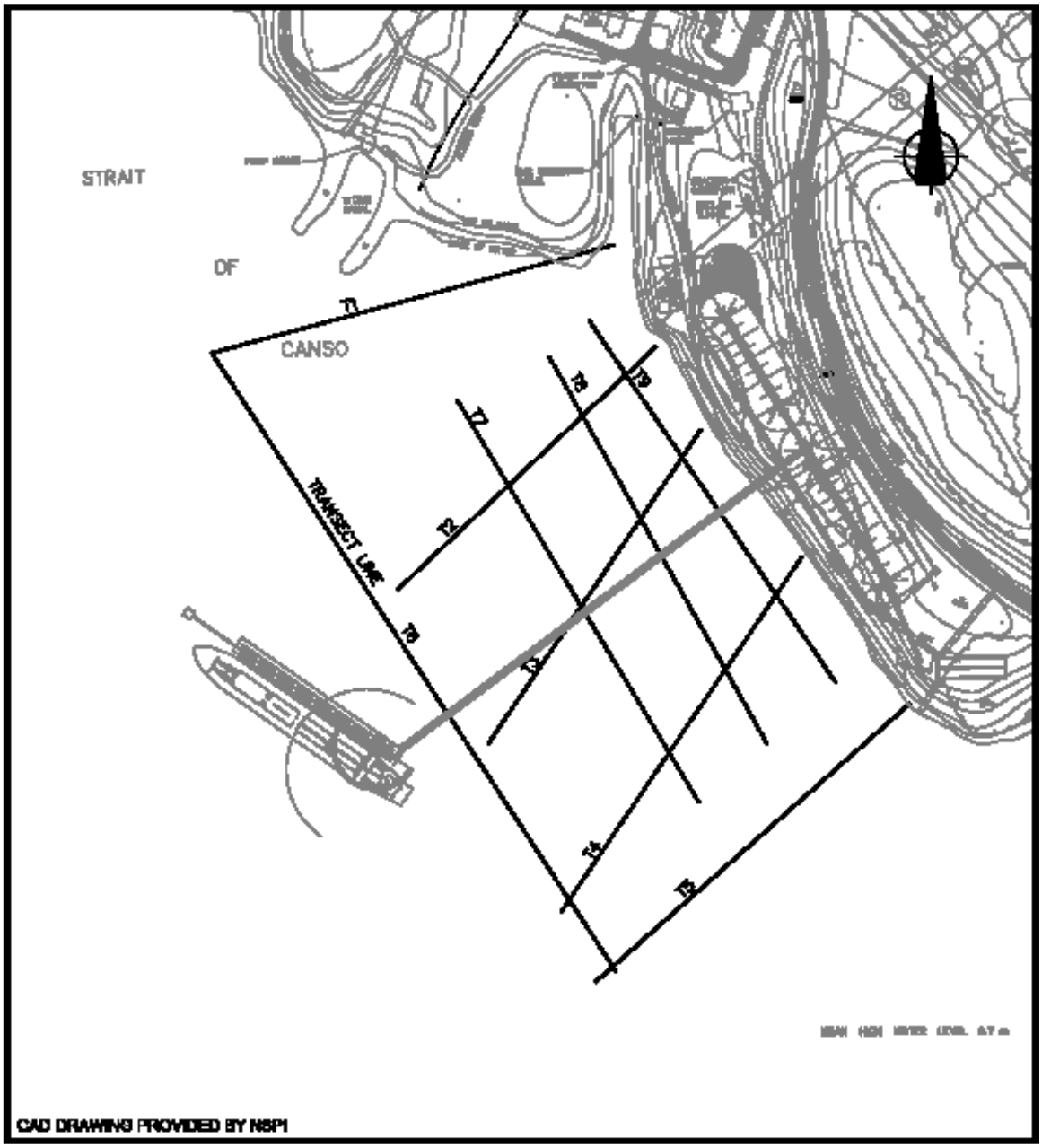

Figure 4 - Benthic Video Transect Locations (AMEC 2003)

The following is a summary of the information provided in the Data Report.

Transect T1:

The initial substrate of transect T1 is predominantly rock and cobble (75 – 200 mm). As the transect proceeds into deeper water, there is a transition to a more dominant mud bottom with some gravel and cobble components. Some boulders do occur on an intermittent basis. At approximately 100 m, the substrate becomes primarily mud until the end of the transect.

The macrofaunal species encountered along transect T1 include: periwinkles (Littorina spp.), barnacles (Balanus spp.), mysid shrimp (Mysidae spp.), green crab (Carcinus maenas) (5), rock crab (Cancer irroratus) (6), sea stars (Asteria spp.), small school of juvenile fish (possibly Clupeidae), small individual fish (possible stickle-backs), frilled anemones (Metridium senile) (5), and some occasional occurrences of encrusting sponges. Some burrows were also observed that could possibly be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T1 include: green filamentous macrophytes (Phaeophyta spp.), rockweed (Fucus spp.), and eel grass plants (Zostera marina). These species were located sparsely along the transect areas (AMEC 2003).

Transect T2:

The initial substrate of transect T2 is predominantly rock and cobble (75 – 200 mm) with the occasional boulder. As the transect proceeds into deeper water, there is a transition to a more dominant mud bottom with some gravel. At approximately 45 m, the substrate becomes primarily mud until the end of the transect.

The macrofaunal species encountered along transect T2 include: periwinkles (Littorina spp.), barnacles (Balanus spp.), mysid shrimp (Mysidae spp.), green crab (Carcinus maenas) (3), a hermit crab (Pagurus spp.), a winter flounder (Pseudopleuronectes americanus), sea stars (Asteria spp.) (2), frilled anemones (Metridium senile) (2), and some occasional occurrences of encrusting sponges. Some burrows were also observed that could possibly be created by a burrowing worm but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T2 include: green filamentous macrophytes (Phaeophyta spp.), rockweed (Fucus spp.), and eel grass plants (Zostera marina). These species were located sparsely along the transect areas, with some sporadic areas having more abundant growth of eel grass (AMEC 2003).

Transect T3:

The initial substrate of transect T3 is predominantly rock and cobble (75 – 200 mm). As the transect proceeds into deeper water, there is a transition to a more dominant mud bottom with some gravel components. At approximately 25 m, the substrate becomes primarily mud until the end of the transect. Some isolated rocks occur at about 255 m along the transect.

The macrofaunal species encountered along transect T3 include: periwinkles (Littorina spp.), barnacles (Balanus spp.), rock crab (Cancer irroratus) (3), sea stars (Asteria spp.) (3), small unidentified fish species (possibly stickleback), adult lobster (Homarus americanus) (1), and frilled anemones (Metridium senile) (2). Some burrows were also observed that could possibly be created by a burrowing worm species, but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T3 include: green filamentous macrophytes (Phaeophyta spp.), rockweed (Fucus spp.), sour weed (Desmarestia spp.), and eel grass plants (Zostera marina). These species were located sparsely along the transect areas (AMEC 2003).

Transect T4:

The initial substrate of transect T4 is predominantly rock and cobble (75 – 200 mm). As the transect proceeds into deeper water, there is a transition to a more dominant gravel bottom at 20 m. At approximately 50 m, the substrate transitions to a primarily mud bottom until the end of the transect. Some isolated rocks do occur from 250 m until the end of the transect.

The macrofaunal species encountered along transect T4 include: barnacles (Balanus spp.), periwinkles (Littorina spp.), scallops (Plactopecten magellanicus), green crab (Carcinus maenas) (2), rock crab (Cancer irroratus) (2), lobster (Homarus americanus) (4), winter flounder (Pseudopleuronectes americanus), sea stars (Asteria spp.) (1), frilled anemones (Metridium senile) (6), and some occasional occurrences of encrusting sponges. Some burrows were also observed that could possibly be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T4 include: green filamentous macrophytes (Phaeophyta spp.), rockweed (Fucus spp.), isolated sour weed (Desmarestia spp.), isolated kelp (Laminaria spp.) and eel grass plants (Zostera marina). These species were located sparsely along the transect areas (AMEC 2003).

Transect T5:

The initial substrate of transect T5 is predominantly rock and cobble. As the transect proceeds, there is a transition to a more dominant gravel bottom at 15 m with a minor sand component. At approximately 150 m, the substrate transitions to a primarily mud bottom with some gravel and isolated rocks until the end of the transect.

The macrofaunal species encountered along transect T5 include: barnacles (Balanus spp.), periwinkles (Littorina spp.), green crab (Carcinus maenas) (1), lobster (Homarus americanus) (4), sea stars (Asteria spp.) (1), frilled anemones (Metridium senile) (2), and some occasional occurrences of encrusting sponges. Some burrows were also observed that could possibly be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T5 include: green filamentous macrophytes (Phaeophyta spp.), rockweed (Fucus spp.), isolated sour weed (Desmarestia spp.), isolated kelp (Laminaria spp.), some small patches of irish moss (Chondrus crispus) and eel grass plants (Zostera marina). These species were located sparsely along the transect areas (AMEC 2003).

Transect T6:

The substrate along the entire length of transect T6 is predominantly mud with some isolated rocks (250 – 300 mm).

The macrofaunal species encountered along transect T6 include: green crab (Carcinus maenas) (1), jonah crab (Cancer borealis), scallops (Plactopecten magellanicus) (3), lobster (Homarus americanus) (1), sea stars (Asteria spp.) (3), frilled anemones (Metridium senile) (1), and some occasional occurrences of encrusting sponges. Some burrows were also observed that could possibly be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T6 include: isolated clumps of rockweed (Fucus spp.), and sour weed (Desmarestia spp.). These species were located sparsely along the transect areas (AMEC 2003).

Transect T7:

The substrate along the entire length of transect T7 is predominantly mud with some isolated rocks.

The macrofaunal species encountered along transect T7 include: jonah crab (Cancer borealis), lobster (Homarus americanus) (3), sea stars (Asteria spp.) (10), and frilled anemones (Metridium senile) (1). Some burrows were also observed that could possibly

be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T7 include: isolated clumps of rockweed (Fucus spp.), kelp (Laminaria spp.), eel grass (Zostera marina), and sour weed (Desmarestia spp.). These species were located sparsely along the transect areas (AMEC 2003).

Transect T8:

The substrate along the entire length of transect T8 is predominantly mud with some gravel components at the end of the transect.

The macrofaunal species encountered along transect T8 include: periwinkles (Littorina spp.), green crab (Carcinus maenas), jonah crab (Cancer borealis), rock crab (Cancer irrotatus), hermit crab (Pagurus spp.), lobster (Homarus americanus) (1), and sea stars (Asteria spp.) (20). Some burrows were also observed that could possibly be created by a burrowing worm species but no individuals were observed. It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T8 include: isolated clumps of rockweed (Fucus spp.), kelp (Laminaria spp.), and sour weed (Desmarestia spp.), as well as sparse and thick patches of eel grass (Zostera marina), These species were located sparsely along the transect areas (AMEC 2003).

Transect T9:

The initial portion of transect T9 is predominantly a gravel/sand mixture. At approximately 80 m there is a transition to a predominantly mud bottom. The substrate then transitions back to a predominantly gravel substrate to the end of the transect.

The macrofaunal species encountered along transect T9 include: periwinkles (Littorina spp.), barnacles (Balanus spp.), green crab (Carcinus maenas) (15), rock crab (Cancer irrotatus) (2), and sea stars (Asteria spp.) (4). It should be noted that the majority of the transect areas that were surveyed contained no macrofaunal species.

The macrofloral species present along transect T1 include: isolated clumps of rockweed (Fucus spp.), and irish moss (Chondrus crispus), as well as sparse and thick patches of eel grass (Zostera marina), These species were located sparsely along the transect areas (AMEC 2003).

Benthic Invertebrate Identification

Additionally, 9 sediment samples were collected from a 0.1 m^2 area to a depth of approximately 5 cm locations identified in Figure 5. This sediment was sieved using a 0.5 mm screen to isolate benthic invertebrates for identification. The remaining sample was bottled and field preserved with 10 % formaldehyde and later transferred to a 100 % solution of isopropyl alcohol. The samples were forwarded to an accredited taxonomist for identification.

The sieved sediment samples were analyzed by a marine biologist for identification of the various taxa residing in the sediment in the vicinity of the proposed construction. The findings are presented in Table 2.

The results indicate that diversity and distribution of invertebrates varies drastically from near shore to the extents of each transect. As shown on Figure 5, samples collected near shore (T2-1 and T4-1) show less abundance of individuals and fewer taxa than samples collected near the centre of the surveyed area (T1-1, T3-1 and T5-1), as well as two-thirds the distance from the shoreline (T3-2 and T4-2), and those collected at the extents of the transects (T2-2 and T5-2) (AMEC 2003).

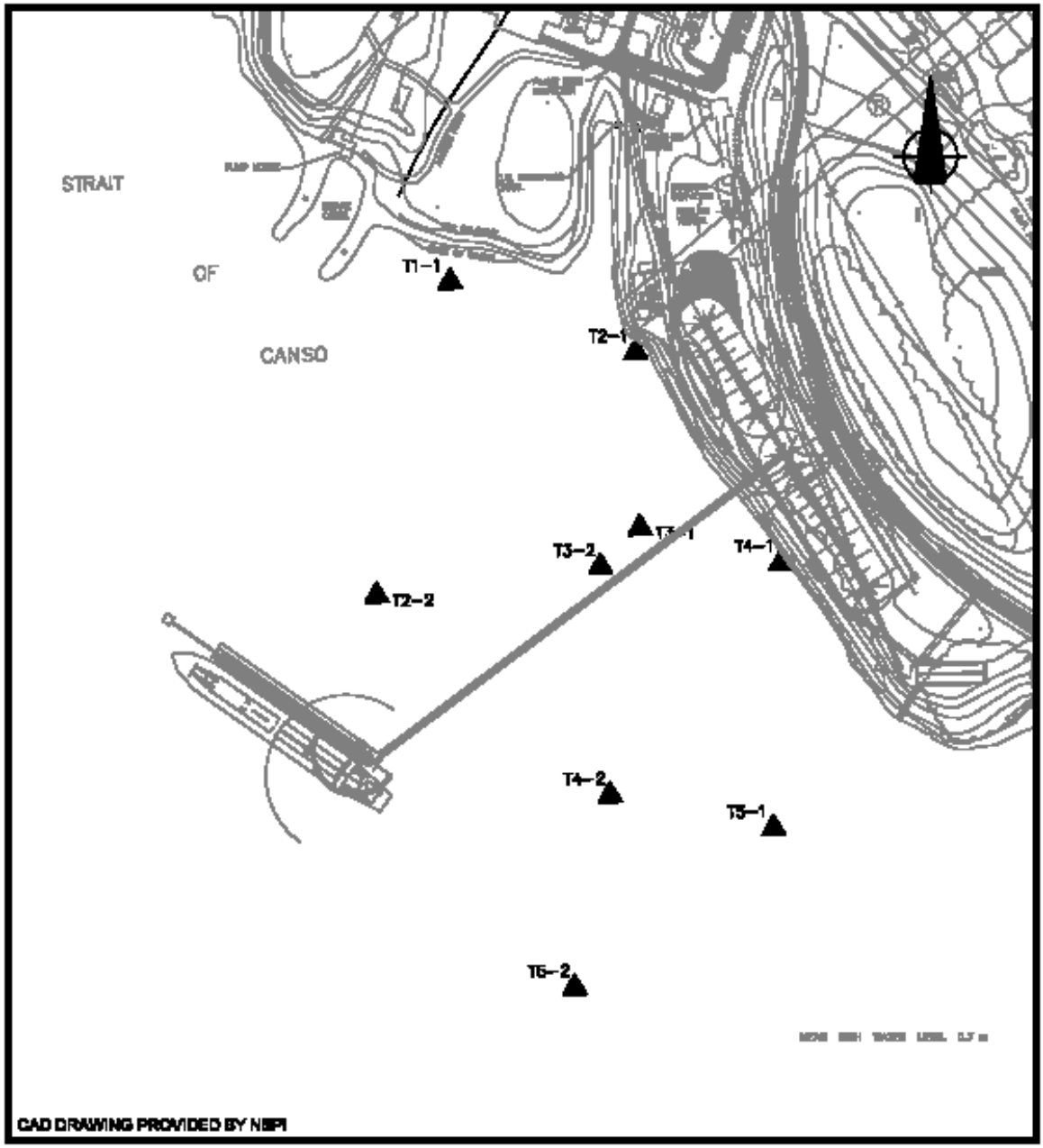

Figure 5 - Marine Sediment Sampling Locations

Table 2 - Results of Benthic Invertebrate Sampling (AMEC 2003)

Family	Scientific Name	Sample Identification/ Abundance								
		T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T5-1	T5-2
Porifera	unidentified				2			6		
Nematoda	unidentified	340		2	2		8	2	59	2
Cnidaria	*Nematosella vectensis*							1		
	Tealia felina						1			
Nemertina	*Cerebratulus lacteus*				2					
	Micrura sp.			2	2	2		2		3
	unidentified							1		
Oligochaeta	Enchytaedae		6				6	2		
	Naididae				2					
	Tubificidae						6			
Polychaeta	*Ammotrypane aulogaster*				2	2				1
	Capitella capitata				18	8		1		
	Clymenella torquata									1
	Eteone flava	13			10	2		8		
	Euchone rubrocincta			4	10	50		7		
	Glycera dibranchiata				6				2	
	Harmothoe extenuata				2					
	Lumbrineris fragilis									1
	Mediomastus ambiseta	10		2	18	68		12		
	Micropthalamus aberrans				2	6		2	1	
	Nephtys caeca	1								
	Nephtys incisa					1				
	Nephtys neotena	1		258	220	472		222	16	5
	Nereis pelagica		2							
	Nereis succinea	3								
	Ninoe nigripes			56	90	32		71	4	4
	Pectenaria gouldii	1								
	Pholoe minuta	15		2	8	24		2		
	Phyllodoce groenlandica	29		2	24	28		7	12	1
	Polydora quadrilobata				70	20		3		
	Polydora websteri	2			4	14		7	47	
	Prionospio steenstrupi			70	46	44		189	2	46
	Protodorvillea kefersteini				2					
	Pygospio elegans	10			2	2				
	Spiophanes bombyx	11			26	32			84	2
	Tharyx acutus					2			1	1
Gastropoda	*Acmaea testudinalis*								2	
	Calliostoma occidentale		2							
	Hydrobia minuta	3								
	Lunatia heros				2					
	Nassarius sp			2		2		1		
	Retusa canaliculata	4			4	18				
Bivalvia	*Mytilus edulis*						1			
	Tellina agilis	56			6				2	
	Yoldia limatula			2						
Copepoda	Harpacticoida	4		4			2			
Amphipoda	*Corophium volutator*								1	
	Lembos websteri	2			2					
	Orchomenella sp.					2				
	Phoxocephalus holbolli				2				3	
Cumacea	*Eudorella truncatula*							1		2
Isopoda	*Jaera marina*						14			
Hemichordata	*Saccoglossus kowalewskyii*					2				
	Total Number of individuals	505	10	406	586	833	38	547	236	69
	Number of Taxa	17	3	12	28	22	7	20	14	12

Fish and Fish Habitat Assessment Summary

The results of the habitat assessment show that the benthic habitat in the Project area has little diversity and is relatively consistent throughout the area. Gravel and cobble materials dominate the immediate nearshore areas. However, the substrate quickly becomes dominated by a mud substrate a short distance from shore. The vegetation is generally very sparse and what vegetation that does occur is dominated by eel grass (Zostera marina), and rockweed (Fucus spp.), with some isolated individual kelp (Laminaria spp.), irish moss (Chondrus crispus), and sour weed (Desmarestia spp.). The eel grass communities were the most varied as they tended to occur both as isolated plants or small groups, but also as thick patches over larger areas of the transects (AMEC 2003). These results are supported by Scarratt, 1994, which states that the area "located between the Refinery and the Generating Station cooling water intake had impoverished habitat on the deeper sections, but in shallow water the flora and fauna were more normal".

There was also little macrofaunal species diversity and very small numbers of individuals present in the study area. The species that were present were found only as isolated individuals or small groups of individuals. The exception to this was the presence of barnacles and periwinkles found predominantly in the cobble near shore areas. While some lobsters (the most commercially important species present) were found on a sporadic basis, there was little refuge (groupings of larger rock and boulders) or other critical habitat features present for them to utilize. In addition, these species do not occur in high enough numbers to sustain any fishery in the Project area.

The invertebrate communities that were identified as part of the sampling program are also consistent with a mud dominated benthic environment. While there was a diverse range of species present in each sample, all samples were dominated by a large number of polychaete species. Large numbers of nematodes also dominated two of the samples; as well a small bivalve species (Telina agilis) was dominant in one sample.

When all the above factors are taken into consideration, the fish habitat within the Project area **does not represent critical habitat**. In addition, the proposed Project is expected to disturb a relatively small area of the substrate within the study area. The steel piles that are proposed for the trestle structures are less than 1 m in diameter and will driven directly into the substrate. The caissons for the loading dock will rest directly on the bottom and will require some removal of the soft substrate material (AMEC, 2003).

It should be noted that the decision was made early on in the project planning to avoid and minimize the disturbance of benthic habitat. To achieve this goal, the option to build a causeway structure for the pier portion of the project was eliminated. Instead the design is primarily a trestle structure with concrete caissons. This decision significantly reduced the amount of fish habitat impact posed by the project. NSPI and Logistec are currently in discussions with DFO on the impact of the project on fish habitat in accordance with DFO's *Policy for the Management of Fish Habitat*.

Based on the type of habitat present, the mitigation measures that have been taken already in the design process, and the discussions with DFO around habitat compensation, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring to demonstrate this may be required after the terminal has been operating for some time.

5.2.2 Marine Resources

The Strait of Canso area of this study includes portions of the commercial Fisheries Statistical Districts 9 and 14. Data were amalgamated from these statistical districts to represent the region in which the study area is situated. The recreational and First Nations fishery are summarized for the area immediately adjacent to the shoreline on which the Terminal will be constructed (AMEC 2003).

Commercial Fishery

The districts encompass an area from near the Causeway to Mulgrave and Sand Point on the mainland side, and across to Inhabitants Bay on the Cape Breton Island portion. The inshore fishery landed approximately 1,102 metric tonnes of fish, and the offshore fishery landed 7,233 metric tonnes for a total of 8,335 metric tonnes of fish from these districts in 2001. Table 3 presents the species and volumes of fish landed in District 9 and 14.

Table 3 - Fisheries Landing Data (AMEC 2003)

Species	**District 9 (metric tonnes)**	**District 14 (metric tonnes)**
Groundfish		
Cod	14	-
Redfish	209	-
Flo Plaice	1	-
Flo G/Sole	1	-
Greenland Turbot	1	-
Pollock	2	-
Total	228	
Pelagic and Estuarial		
Mackerel	13	53
Eels	1	-
Herring	-	1
Unspecified Pelagic	-	1
Alewives	-	1
Total	70	
Shellfish		
CLA Unspecified	148	1241
Oyster	1	-
Lobster	70	14
Shrimp	1712	3181
Shrimp Pand Montagui	-	71
Rock Crabs	2	28
Queen Crabs (Snow)	1420	144
Total	8030	

The majority of fish landed in these districts are shellfish, primarily shrimp and to a smaller extent, queen crabs. It should be noted that the area to be disrupted is extremely small in comparison to the area of the adjacent districts, and the landings presented in the above table were not necessarily caught near Point Tupper.

Correspondence with Department of Fisheries and Oceans representatives confirmed the presence of a limited commercial lobster fishery (Class B license) in the immediate vicinity of the proposed construction, and indicated that scallops and possibly mackerel might also be commercially landed from this general area. The survey of benthic habitat of the project area indicates that the project footprint does represent somewhat productive habitat for these fisheries (AMEC 2003). However, the specific locations where the support caissons for the berthing structure will be placed represent less productive habitat compared with that closer to shore.

Table 4 presents a summary of commercial fishery licenses in the area of Point Tupper. It should be noted that the summary of commercial fishing licenses is based on a regional scale (in the vicinity of the proposed construction site), and does not necessarily establish that a viable commercial fishery exists on the study area. Additionally, the tabled information is limited to the Scotia-Fundy Strait area, and excludes licenses in homeports outside this area (AMEC 2003).

Table 4 - Licenses Table (AMEC 2003)

Home Port	Species Description	License Type	License Type Total
Melford	Groundfish, unspecified	Vessel Based Limited	5
	Herring	Vessel Based Limited	5
	Lobster	Vessel Based Limited	5
	Mackerel	Vessel Based Limited	5
	Seal Skins/gray	Non-Vessel Based Limited	1
	Squid, unspecified	Vessel Based Limited	5
Mulgrave	Alewives/Gaspereau	Non-Vessel Based Limited	1
	Groundfish, unspecified	Vessel Based Limited	15
	Herring	Vessel Based Limited	15
	Herring/Mackerel	Bait	3
	Lobster	Vessel Based Limited	15
	Mackerel	Vessel Based Limited	15
	Scallop, sea	Recreational	1
		Vessel Based Limited	15
	Squid, unspecified	Vessel Based Limited	15
	Swordfish	Vessel Based Limited	15
Steep Creek	Herring	Vessel Based Limited	4
	Lobster	Vessel Based Limited	4
	Mackerel	Vessel Based Limited	4
	Squid, unspecified	Vessel Based Limited	4

Recreational Fishery

Correspondence with local area DFO representatives and fishers revealed that some limited recreational fishing for mackerel and rock cod occurs in the area of proposed development. Local residents typically do this fishing from shore or small recreational

watercraft. Fishing from shore is not currently permissible in the Project area due to current industrial activities (AMEC 2003).

First Nations Fishery

Correspondence with DFO's Aboriginal Coordinator revealed little information pertaining to aboriginal fisheries in the area of proposed development. Additional requests from local bands for additional information did not provide any additional information. However, previous studies conducted by AMEC in the Strait region suggests that a limited aboriginal fishery exists in the Strait, and likely in the vicinity of the Point Tupper Generating Station (AMEC 2003).

Aquaculture

Aquaculture is the culturing of aquatic organisms in both marine and fresh waters. The Nova Scotia Department of Agriculture and Fisheries Aquaculture Division (NSDAF) reports that in 2002, that there were approximately 370 aquaculture leases in Nova Scotia. Table 5 provides a summary of the finfish and shellfish species and volumes harvested in Nova Scotia in 2002.

Table 5 - Summary of Aquaculture Activity for Nova Scotia in 2002 (AMEC 2003)

Species	Production (metric tonnes)	Region
Atlantic Salmon (marine)	1,950,609	Bras d'Or Lakes, Annapolis Basin, Shelburne Harbour, St. Margaret's Bay
Rainbow Trout (steelhead)	434,012	Pubnico, Lobster Bay, Bras d'Or Lakes
Atlantic Salmon (nurseries/hatcheries)	181,169	Various
Speckled/Rainbow Trout (hatcheries)	120,630	Various
Blue Mussels	1,072,970	Strait of Canso to Halifax, south shore from Halixax to Yarmouth, coastal areas of Cape Breton
American Oysters	340,318	Northumberland Strait, Bras d'Or Lakes
Ocean and bay Quahogs	373,935	Not Available
Sea Scallops	16,464	Strait of Canso to Halifax, Halifax to Yarmouth, coastal areas of Cape Breton
European Oysters	8,666	Halifax to Yarmouth, and selected areas of Eastern Shore.
Arctic Char	Unavailable	Unavailable
Clams	Unavailable	Unavailable
Tilapia	Unavailable	Unavailable
Marine Plants	Unavailable	Unavailable
Bay Scallops	Unavailable	Unavailable

Within the study area, there are no existing or proposed aquaculture sites, and the nearest farm, harvesting a variety of shellfish such as American Oysters and Blue Mussels is off the shore of Port Hastings, to the northwest of Point Tupper on the opposite side of the causeway. There are also several aquaculture sites between Steep Creek and Sand Point, on the mainland side at the extents of the Strait, harvesting Atlantic salmon and rainbow trout.

The above-mentioned sites are outside the area proposed for the terminal. Furthermore, the majority of the aquaculture sites within this region are scattered throughout Inhabitants Harbour, which is beyond the Strait of Canso.

Although there are no proposed or existing aquaculture sites near the study area, the NSDAF reports that the Strait of Canso to Halifax, and coastal areas of Cape Breton Island, exhibit excellent conditions for the culturing and harvesting of Blue Mussels and Sea Scallops, and suitable conditions for Atlantic salmon and rainbow trout (AMEC 2003).

Navigable Waters

The Strait of Canso is used for commercial, industrial, and recreational navigation. Therefore, an approval under the Navigable Waters Protection Act is required. This approval is currently being pursued with DFO. A berthing simulation of the proposed terminal has been completed in conjunction with this approval at the Nova Scotia Community College Nautical Institute and has received endorsement from the Atlantic Pilots Association.

Marine Resources Assessment Summary

Discussions with DFO personnel, industry representatives and a review of landing and license data, indicated that commercial fisheries do occur in the vicinity of the project area. Unfortunately, the information is too general in nature, and specific fishing data for the project footprint was not readily available from data sources and regulatory agencies. Informal discussions with local fishers indicated that there was no commercial fishing conducted within the project footprint. Any species of commercial value that were observed in the project area, occurred only on an individual basis, and do not occur in sufficient number to sustain a fishery in the Project area.

In addition, discussions with First Nations representatives, as well as information gathered from previous reports revealed that some limited First Nations fishing does occur in the vicinity of the project area. As well, recreational fishing may occur in the general area but it is unknown what level of recreational fishing actually occurs within the specific project footprint. While some occasional fishing may indeed occur in the vicinity of the proposed Project area, **the limited impact** on the marine environment and the **passive nature of the Project** will have little long-term impact to these activities.

With regards to short-term disturbances that may occur during the construction of the project, it is recommended that Nova Scotia Power provide public notification of the timing of the marine construction activities. This will provide an awareness of the project, and it's timing to local fishers, to allow them to adjust their fishing activities in the project area. Proper warning signage and lighting should also be provided for any equipment or newly installed structures that are in the water, to avoid collisions with boaters (AMEC 2003).

Based on the type of habitat present, the mitigation measures that have been taken already in the design process, and the ongoing discussions with DFO around habitat compensation and navigation, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring to demonstrate this may be required after the terminal has been operating for some time.

5.2.3 Species at Risk

As stated in the Table 1, potential for rare and endangered species in the categories of birds and bird habitat, amphibian and reptiles, and vegetation are incorporated together under the Species at Risk VEC.

The Nova Scotia Museum of Natural Heritage (NSMNH) was contacted on 22 August 2003 for information relating to known or suspected species or habitats of significance. The NSMNH is an active partner with the provincial government in evaluating, protecting, and aiding in recovery efforts of habitats, species' at risk, and cultural heritage sites. The NSMNH also provides coordination in the tracking of species that are designated at risk by Provincial agencies as well as those listed by the Committee of the Status of Endangered Wildlife in Canada (COSEWIC). The Museum compiles records of confirmed sightings, collections and reports of such species or heritage items.

Accordingly, the Museum has generated a broad base of knowledge pertaining to Nova Scotia environment, and therefore, is an exceptional source for information. The information is useful for parks and natural areas planning, management and interpretation; land use planning for municipalities; development project planning, assessment and evaluation; eco-tourism and recreational planning.

A response was received from the NSMNH on September 9th, 2003, and reported a number of items of interest, as summarized below. **No species of significance or cultural resources were identified for the project footprint** (AMEC 2003).

Flora

The NSMNH reports that while floral species of concern are not recorded in the project footprint, there are known occurrences of five special-concern botanical species within the Strait of Canso area, all of which are yellow-listed on the Nova Scotia Department of Natural Resources General Status Ranks of Wild Species in Nova Scotia. A yellow listing refers to species not believed to be at risk of immediate extirpation or extinction, but may require special attention or protection to prevent them from becoming at risk. These species and their typical habitats are as follows:

> *Dryopteris fragrans,* var. *remotiuscula;* (fragrant wood fern – dry overhanging cliffs and in cliff crevices along streams and waterfalls)

Epilobium strictum; (willow herb – Boggy areas and meadows)

Geocaulon lividum; (northern comandra – in sterile soils, typically acid or peat bogs)

Monita Fontana; (blinks- mossy banks above brackish areas) and,

Packera (*Senecio*) *paupercula* (ragwort – gypsum outcrops, dry cliffs, talus slopes typically in large conspicuous groups).

These species were not observed in the Study area during the review of the shore portion of the Project. In addition, the critical habitat required for the above noted species, is not present on the terrestrial portion of the project area, and therefore these species are not expected to be present at any time (AMEC 2003).

Birds

The NSMNH reports nesting records of two birds of special concern in the general Strait area. These species and their preferred nesting habitat are outlined below:

- *Sterna hirundo* (Common tern – shallow depressions in sand or turf, secluded areas, typically nests in colonies) – yellow listed; and

- *Rallus limicola* (Virginia Rail – ground nester in freshwater marsh areas) – not provincially listed, but restricted in numbers and habitat.

These species were not observed in the study area. While there is a chance that the common tern may occur on an individual and occasional basis in the study area, the study area does not represent critical nesting or feeding habitat for either of these species (AMEC 2003).

Marine Mammals

Additionally, the presence of a variety of marine mammals in the region has been documented in the Strait area, although not specifically confirmed at the site. There are five species of whale listed by COSEWIC and the Convention on International Trade in Endangered Species (CITES) as seasonal, occasional or rare, although none are provincially listed. These include:

Phocoena phocoena (Harbour Porpoise) – COSEWIC **seasonal**;

Eubalaena glacialis (Right Whale) – COSEWIC, CITES – **occasional**, **seasonal**;

Balaenoptera musculus (Blue Whale) – COSEWIC, CITES – **rare**, **seasonal**;

Balaenoptea physalus (Fin Whale) – COSEWIC, CITES – **seasonal**; and

Magaptera novaeangliae (Humpback Whale) – COSEWIC, CITES – **seasonal**.

The NSMNH identifies the disruption of bottom sediments as potentially detrimental to these species from biomagnification of contaminant concentrations as a result of their position atop the food chain. With the relatively low levels of contaminants found in the sediments of the project area this is not a concern for the proposed project details of which are contained the following section. The above species were not observed in the study area and are considered only seasonal or occasional visitors to the Strait area. The project area does not contain habitat that is conducive or attractive to these species and it unlikely that they would frequent this area (AMEC 2003).

The Atlantic Canada Conservation Data Centre (ACCDC) was also contacted to provide an assessment of rare species in the area of the proposed terminal. The ACCDC responded on November 25th, 2003 with the results of their database search. The ACCDC informed NSPI that typically the search is limited to a 5 km radius around the site, however; in this case the search was expanded to 10 km for several reasons. The first reason was that the 5 km radius search captured little or no data on rare and endangered species. The second reason was due to the fact that if the 10 km radius were used, the search would include Migratory Birds. A summary of the results of the 10 km search is indicated below.

> Data Density - A 10 km buffer around the Study Area contains a relatively SMALL-to-MODERATE (quintile 2) number of rare taxa records: 34 records of 23 taxa from 10 sources.
>
> Flora - A 10 km buffer around the Study Area contains 6 records of 6 rare vascular flora, no records of 0 rare nonvascular flora.
>
> Fauna - A 10 km buffer around the Study Area contains 15 records of 8 rare vertebrate fauna, 13 records of 9 rare invertebrate fauna. Wood turtles are present in the watersheds in the study area (10 km radius), and utilize both the upper and lower elevations although they have not been observed at or near the project location (Bredin, Kate, Pers. Com.)
>
> Special Areas - The GIS scan identified no Managed Areas in the vicinity of the Study Area. The GIS scan also identified no Special Areas in the vicinity of the Study Area.

Species at Risk Assessment Summary

While some Species at Risk are known to occur in the general Strait of Canso area, these species were not observed in the Project area during the fieldwork conducted by AMEC. As well, the database search conducted by the ACCDC confirmed that the study area (10 km radius around project site) showed a relatively SMALL to MODERATE number of rare taxa records with no recorded rare and/or endangered species observations at or near the project site. In addition, **the Project site does not provide critical habitat** for most

of the identified species. No additional measures are recommended due to the information contained above combined with the **relatively small footprint and low impact** posed by the project.

Based on the type of habitat present and the additional information gathered and presented above, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring is not required.

5.2.4 Sediment Quality

To further characterize the marine benthic environment in the area of the proposed coal-unloading terminal in Point Tupper, 9 sediment samples were collected in the proposed area of the dredging operations at predetermined locations selected by AMEC, as shown in Figure 5. The sediment samples were collected to a depth of approximately 150 mm. All samples were tested for PCBs, PAHs, TPH/BTEX, metals (including mercury and chromium VI), pesticides, TOC, TIC and grain size. Detailed results of the sampling program are provided in the tables below.

Table 6 - Results of TOC, TIC and PCB Analyses of Sediment from near Point Tupper, Nova Scotia (AMEC 2003)

Parameter	Sample Identification										CCME SQG[1] (Commercial)	CCME SQG[2] (Industrial)
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2		
Total Organic Carbon (g/kg)	0.48	0.19	3.37	1.62	3.53	0.34	1.84	1.84	0.40	0.70	-	-
Total Inorganic Carbon (g/kg)	0.07	1.58	0.69	0.00	0.02	0.36	0.22	0.32	0.04	0.55	-	-
Total PCB (mg/kg)	ND	ND	0.19	0.26	0.33	ND	0.24	0.120	0.037	0.020	33	33

Note:
1) CCME Soil Quality Guideline for a commercial site
2) CCME Soil Quality Guideline for an industrial site
3) ND – Not detected

Table 7 - Results of BTEX/TPH Analysis of Sediment from near Point Tupper, Nova Scotia (mg/kg) (AMEC 2003)

Parameter	Sample Identification										RBCA Tier 1[1]	CCME SQG (Commercial/ Industrial)
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2		
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	120	8
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4800	0.8
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2400	20
Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3400	17[2]
C_6 - C_{10}	ND	ND	ND	ND	0.665	ND	ND	0.352	ND	ND	-	180
> C_{10} - C_{21}	9	ND	75	44	126	ND	59	42	8	8	-	150
> C_{21}- < C_{32}	50	ND	344	218	612	ND	286	190	48	83	-	1700
Modified TPH	159[3]	ND	419	262	739	ND	345	232	55	102	1740	-

Note:
1) RBCA Tier 1 Guidelines for heavy fuel on a non-potable commercial site with clay material
2) CCME Soil Quality Guideline for ethylbenzene at an industrial site is 20 mg/kg
3) Shaded blocks indicate values that exceed applicable guidelines
4) ND – Not Detected

Table 8 - Results of PAH Analysis of Sediment from near Point Tupper, Nova Scotia (mg/kg) (AMEC 2003)

Parameter	Sample Identification										CCME SQG[1] (Commercial)	CCME SQG[2] (Industrial)
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2		
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.009	22	22
Chrysene	0.022	ND	ND	ND	ND	ND	ND	ND	ND	0.033	-	-
Benzo(b)fluoranthene	0.012	ND	ND	ND	ND	ND	ND	ND	ND	0.016	10	10
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	10
Benzo(a)pyrene	0.0152	ND	ND	ND	ND	ND	0.0253	ND	0.007	0.0242	0.7	0.7
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0199	-	-
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	10
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	10
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0223	-	-
Benzo(a)anthracene	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	10	10
Phenanthrene	0.0408	ND	0.0515	0.0427	0.0605	ND	0.0337	0.0425	0.0208	0.107	50	50
Anthracene	0.0204	ND	ND	0.0129	ND	ND	ND	0.0128	0.007	0.0313	-	-
Fluoranthene	0.0498	ND	0.0636	0.048	0.0849	ND	0.0511	0.0508	0.0216	0.0829	-	-
Pyrene	0.0299	ND	0.0414	0.0316	0.0559	ND	0.0343	0.0341	0.0152	0.0569	100	100
Total PAH	0.22	ND	0.157	0.135	0.2013	ND	0.1444	0.14	0.0716	0.403	-	-

Note:
1) CCME Soil Quality Guideline for a commercial site
2) CCME Soil Quality Guideline for an industrial site
3) ND – Not Detected

Table 9 - Results of Pesticide Analysis of Sediment from near Point Tupper, Nova Scotia (mg/kg) (AMEC 2003)

Parameter	Sample Identification										CCME SQG[1] (Commercial)	CCME SQG[2] (Industrial)
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2		
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
a-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
a-Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Aldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
b-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
d-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Dieldrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Endosulfan Sulphate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
g-Chlordane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Heptachlor Epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Lindane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Mirex	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
o,p'-DDD + p,p'-DDD	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
o,p'-DDE + p,p'-DDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
o,p'-DDT + p,p'-DDT	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	12
Total Pesticides	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Aroclor 1254	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

Note:
1) CCME Soil Quality Guideline for a commercial site
2) CCME Soil Quality Guideline for an industrial site
3) ND – Not Detected

Table 10 - Results of Metals Analyses of Sediment from near Point Tupper, Nova Scotia (mg/kg) (AMEC 2003)

Parameter	Sample Identification										CCME SQG (Commercial)	CCME SQG (Industrial)
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2		
Aluminum	3370	8410	6680	5330	6330	8280	6120	5330	3510	4700	-	-
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40	40
Arsenic	1.65	5.53	7.21	4.62	5.34	4.22	6	4.88	2.17	4.77	12	12
Barium	60.7	18	55.3	56.9	58.2	34.9	70.6	64.7	70.2	50.9	2000	2000
Beryllium	ND	0.58	ND	ND	ND	0.52	ND	ND	ND	ND	8	8
Bismuth	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Boron	6.3	3.8	20.8	10.6	13.6	5.5	12.4	14.2	5.8	12	-	-
Cadmium	ND	ND	0.46	ND	0.43	ND	ND	ND	ND	ND	22	22
Calcium	1280	4190	3440	923	1220	9820	1480	1850	1050	5080	-	-
Chromium	5.94	13.8	16.7	11.3	15.8	13.4	12	10.4	5.98	8.8	87	87
Cobalt	3.3	9.27	5.87	4.94	5.74	8.38	5.64	5.08	3.53	4.61	300	300
Copper	6.4	24.8	16.5	13.6	16	11.3	14.9	11.4	5.6	10.2	91	91
Iron	6470	16600	13600	10100	12100	16100	12600	10900	6580	10200	-	-
Lead	5.67	15	22.8	13.9	17	10.8	16.3	13.2	7.61	10.8	260	600
Lithium	9.62	21.2	19.6	18.3	22.4	22	18.3	16.3	11.3	13.5	-	-
Magnesium	2530	5430	4980	3250	4120	6040	4130	3970	2560	3820	-	-
Manganese	125	2500	161	112	138	600	156	161	103	206	-	-
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	50
Molybdenum	0.79	0.91	4.03	2.2	2.92	<0.49	1.96	1.02	<0.49	<0.49	40	40
Nickel	8.45	23.5	20.5	13.4	17.4	21.5	14.8	12.3	9.08	10.9	50	50
Potassium	477	972	1400	906	1110	892	1100	990	507	826	-	-
Selenium	ND	ND	0.63	0.7	ND	ND	0.62	ND	ND	ND	3.9	3.9
Silicon	ND	ND	ND	ND	ND	ND	ND	ND	ND	<70	-	-
Silver	0.3	ND	ND	ND	ND	ND	ND	ND	ND	<0.21	40	40
Sodium	2540	2130	11 500	4780	7200	2450	5630	5490	2560	4160	-	-
Strontium	6.72	17.8	28.7	13.7	18.9	30.9	15.7	15.7	8.16	22.1	-	-
Tellurium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1	1
Thorium	1.28	2.14	2.12	1.77	1.96	2.11	3.55	1.76	1.36	1.72	-	-
Tin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	300
Titanium	24.9	42.7	20.5	19.7	21.1	18.6	30.7	29	27.9	30.7	-	-
Tungsten	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
Uranium	ND	ND	1.55	1.25	1.39	ND	1.13	0.79	ND	ND	-	-
Vanadium	8.98	12.4	35.6	19.9	25.9	13.6	21.1	17.7	9.40	14.6	130	130
Zinc	28.8	96.9	94.4	70.5	104	65.9	61.2	51.2	30.9	45.7	360	360

Note:
1) CCME Soil Quality Guideline for a commercial site
2) CCME Soil Quality Guideline for an industrial site
3) ND – Not Detected

Table 11 - Results of Grain-Size Analysis of Sediment from near Point Tupper (AMEC**)**

Particle Size (%)	Sample Identification									
	T1-1	T2-1	T2-2	T3-1	T3-2	T4-1	T4-2	T4-28	T5-1	T5-2
Gravel	2	99	<1	<1	<1	31	<1	4	<1	10
Sand	91	1	50	54	44	69	59	57	89	81
Silt	7	< 1	39	38	44	<1	32	34	9	9
Clay	7	<1	13	9	11	<1	9	7	9	9

Sediment Quality Assessment Summary

The sampling program outlined in this report verified that the marine sediments found in the project area have lower contaminant levels when compared to historical data from other areas of the Strait, for example, data obtained during dredging of the Port Hawkesbury and Mulgrave Government Wharves (Land and Sea, 1990). When results from laboratory analysis were compared to the Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines and Atlantic Partners in RBCA Implementation (PIRI) Tier 1 values, all parameters that were analyzed were found to be below guideline levels and therefore acceptable for land disposal (see Tables 6-11). The relatively low levels of contaminants found in the samples also means that during construction, there is little risk of remobilizing high levels of contaminants back into the marine environment (AMEC 2003).

Dredging will be carried out by a contractor with experience working in this area of the Strait of Canso. Discussions with this contractor have indicated that the potential for impact from disturbed sediment, based on prior experience, is minimal due to the low water velocity in the area of concern. It should also be noted that the decision was made early in the project planning that no sediment and dredging spoils would be disposed of at sea. This measure will further reduce the environmental risk posed by disturbing the bottom substrate in the area of the proposed terminal.

Based on the low levels of contamination present, the relatively small volume of sediment to be affected, and the decision to utilize land-based disposal, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring is not required.

5.2.5 Archaeological and Heritage Resources

The Nova Scotia Museum of Natural History has indicated that there are no known archaeological resources, within the study area. However, due to the lack of previous surveys in the study area, and the presence of archaeological resources in the region, they recommend that some additional archaeological survey work may be required at the proposed Project site. It is therefore recommended that if ground disturbance is required in the onshore portion of the Project that a preliminary archaeological survey is carried out prior to construction. This assessment of high potential areas typically involves a "walk-over" of the site by a qualified archaeologist, with several hand dug test pits performed in the study area (AMEC 2003).

Based on the relatively low potential for archaeology resources in the project footprint combined with the recommendation for a preliminary site walk over prior to construction, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring is not required.

5.2.6 Groundwater Resources

The coal storage pad will be built to provide an impervious barrier of 10^{-6} or better to prevent the leaching of contaminants in the subsurface and to direct runoff to the treatment facility. Alkaline material may be applied during operations of the facility if pH of runoff from the piles becomes too acidic. As well, monitoring wells will be installed downgradient of the coal storage pad to verify the quality of groundwater and detect any problem.

Based on the project design combined with the mitigation measures described above, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the project on this VEC is expected to be insignificant. Follow-up monitoring will be carried out as described above.

5.2.7 Water Quality

Coal pile run-off was identified as a potential source of impact for the surrounding environment. The existing coal pile at the Point Tupper Generating Station is designed to enable the collection and treatment of all coal pile run-off before discharge to the environment. The new coal pile will be designed in a similar fashion. To achieve this capability, the lay down pad for the new coal pile will be constructed out of a low permeability material such as clay and/or a synthetic liner. In addition, the perimeter of this lay down pad will be graded and ditched to direct all runoff to a holding pond for treatment. The storage capacity of the holding pond and associated ditching will be designed to contain runoff from a 1 in 100 year rainfall event.

Water will be treated via a combination of primary (settling) and secondary (chemical addition) treatment to adjust pH and to remove metals and other suspended solids. The first step in the treatment process will be the initial settling out of suspended solids in the holding pond. From here the water will be drawn into the wastewater treatment facility where chemical (Sodium Hydroxide Solution) will be added to adjust the pH to the optimum level to maximize metals precipitation. After pH adjustment, a flocculating polymer or inorganic coagulant will be added to the water to further remove suspended solids before discharge if necessary. Effluent monitoring and measuring will occur as per Operating Approval requirements. The effluent will meet or better the applicable criteria for discharge.

Based on the project design and the collection/treatment process described above, it is the opinion of the proponent that the residual effect of the projects impact on this VEC will be insignificant. As well, the cumulative effect of the projects impact on this VEC is expected to be insignificant for the same reasons. Follow-up monitoring will be carried as described above.

5.3 Project Activities

The sections below describe the potential environmental impacts, significance, and mitigation measures of specific project activities.

5.3.1 Fugitive Dust Emissions

Fugitive dust from the coal pile and handling operations was identified as a potential concern for the surrounding environment. Although there are no residential or commercial receptors in the area, several measures will be incorporated into the design of the facility to ensure that fugitive dust is managed effectively. Measures incorporated include:

- Water sprays installed in the berthing facility unloading hopper.
- Construction of a hooded inhaul conveyor to transport coal from the berthing facility to the coal pile.
- Construction of enclosed shuttle conveyors to transport coal over top of the coal pile for stacking.
- Construction of dust tubes through which coal will be dropped to build the piles.
- Installation of water misters on the shuttle conveyor framework to keep the pile moist in dry conditions.
- Heat tracing and insulation of water lines to allow operation in freezing conditions.
- Utilization of a water truck to focus on areas as needed such as roads.
- Fugitive dust monitoring at the site boundary.

The hooded inhaul conveyor, shuttle conveyor, and the dust tubes all serve to protect the coal from exposure to the wind during transfer between different stages of the process. The water misters and the water truck will provide dust control on the coal pile itself.

Should fine-grained solid fuel be received, a combination of measures will be used to prevent entrainment of dust by wind, including covering of the fine-grained material with coarse-grained material or with other stabilizing material such as mulched hay.

Based on the project location, design, and various mitigation measures described above, it is the opinion of the proponent that the residual effect of fugitive dust on the local environment will be insignificant. As well, the cumulative effect of fugitive dust from this project is expected to be insignificant. Follow-up monitoring will be carried as described above.

5.3.2 Marine Discharges

There will be no discharges to the marine environment, apart from treated site runoff. As stated in section 5.2.7, all site runoff will be collected and treated prior to discharge. The effluent will meet or better the applicable criteria for discharge. Monitoring of the effluent will be carried out.

Therefore, based on the design, and the mitigation measure described above, it is the opinion of the proponent that the residual effect of marine discharges on the local environment will be insignificant. As well, the cumulative effect of fugitive dust from this project is expected to be insignificant.

5.3.3 Noise

The project site is located in an industrial park zoned for this type of activity. There are no nearby residential areas. As well, excessive noise levels are not expected to be an issue due to the nature of the project.

Therefore, based on the nature and location of the project and the information above, it is the opinion of the proponent that the residual effect of noise on the local environment will be insignificant. As well, the cumulative effect of noise from this project is expected to be insignificant. Monitoring is not required.

5.3.4 Onshore Waste Disposal

Onshore waste disposal will be carried out as per existing regulations and guidelines. Dredging spoils from the construction process will be landfilled as described in section 5.2.4. Waste from the operation of the terminal is not expected to be significant and will be handled appropriately.

Therefore, based on the nature of the project and the information above, it is the opinion of the proponent that the residual effect of onshore waste disposal on the local environment will be insignificant. As well, the cumulative effect of onshore waste disposal from this project is expected to be insignificant. Monitoring is not required.

5.3.5 Erosion and Sedimentation

Section 5.1 describes the major environments around the proposed terminal location. Based on the information in this section, specifically the geological setting, it is the opinion of the proponent that the residual effect of sedimentation and erosion on the local environment will be insignificant. As well, the cumulative effect of erosion and sedimentation from this project is expected to be insignificant. Monitoring is not required.

5.3.6 Traffic

Coal is currently unloaded at an alternate site in the Strait of Canso. The construction of the proposed terminal will not increase the ship traffic in this area but rather direct it to different location. As well, coal will be shipped overland from the site via rail car and therefore will not increase truck traffic on roads and highways.

Therefore, based on nature of the project and the information above, it is the opinion of the proponent that the residual effect of traffic on the local environment will be insignificant. As well, the cumulative effect of traffic from this project is expected to be insignificant. Monitoring is not required.

5.4.7 Dredging

Information pertaining to dredging has already been presented in Section 5.2.1 and 5.2.4. The proponent is working with DFO on the issue of impact to fish habitat. As well, sampling of the marine sediments has shown that levels of contaminants are below guidelines for land-based disposal.

Therefore, based on the mitigating measures described above, it is the opinion of the proponent that the residual effect of dredging on the local environment will be insignificant. As well, the cumulative effect of dredging from this project is expected to be insignificant. Monitoring will be carried out as required.

5.2.8 Invasive Species

Invasive species introduced through the exchange of ballast water from international vessels is an ongoing issue for Atlantic Canada. However, for this project, the risk of introducing invasive species into the Strait of Canso will be low for two reasons. The first is that the operation of the terminal will not increase the traffic of ships to the Strait in the near term as coal is currently landed at an alternate location in the same area. The second, and more important of the two, is that vessels traveling to the coal terminal will be required to follow the Transport Canada “Guidelines for he control of Ballast Water Discharge from Ships in Waters Under Canadian Jurisdiction”.

Therefore, based on the information above, it is the opinion of the proponent that the residual effect of invasive species on the local environment will be insignificant. As well, the cumulative effect of invasive species from this project is expected to be insignificant. Monitoring is not required.

5.3.9 Accidents and Malfunction Contingency

The proposed terminal will adhere to Federal and Provincial regulations concerning the requirements for contingency plans for accidents and malfunctions. Specifically, the Federal Fisheries Act prohibits the release of "deleterious substances" into water inhabited by fish. Appropriate measures and contingency plans will be put in place to prevent the spill or release of such substances into the waters of the Strait of Canso. The Accident and Malfunction Contingency Plan for the operations phase of the terminal can be found in Appendix 2. As well, the Provincial Emergency Spills Regulations specify the reporting requirements for specific substances spilled or released to land. The Provincial Dangerous Goods Regulations and Petroleum Management Regulations require contingency plans to be put in place to address oil and chemical spills.

To specifically prevent the spillage of coal into the waters surrounding the terminal, several measures will be put in place. For belted self-unloading vessels, the un-loading belt is hooded and is underlain by a containment tarp to prevent coal from spilling into the water. For bulk carriers, the unloading crane "clam" used to unload these vessels will have a "positive seal system". This system ensures that the clam is completely closed before being raised from the cargo hold. This will prevent coal from spilling into the water. In both cases, the unloading hopper on the berthing facility will be equipped with water sprays to keep the coal moist to minimize fugitive dust. The inhaul conveyor will carry coal from the un-loading hopper to the shuttle conveyor on land. This in-haul conveyor will be hooded and will also be underlain by a spill tray.

There is minimal requirement to have bulk liquid fuel storage on the pier or the berthing facility as the unloading crane will be electrically powered. As well, the requirement for dangerous goods (petroleum products and chemicals) on shore is minimal and would consist of lube oils, greases, diesel for heavy equipment, and chemicals for wastewater treatment. Storage of these products on shore and the berthing facility will be equipped with secondary containment measures, spill response equipment, labeling and signage, contingency plans, and training for personnel to manage and respond to spills in accordance with applicable legislation.

Based on the overall project design, purpose, and nature, the various mitigation measures described in previous sections of this document, and the contingency plan(s) that will be in place, it is the opinion of the proponent that the residual effect from accidents and malfunctions on the local environment will be insignificant. As well, the cumulative effect of accidents and malfunctions from this project is expected to be insignificant.

5.4 Effects of the Environment on the Project

The following sections describe the effects of the environment on the proposed terminal.

5.4.1 Meteorology and Oceanography

The Strait of Canso is currently the site of several other seaports similar in nature to the proposed terminal due to the favourable characteristics of this area. The design process of the proposed terminal has taken into account forces that that will be applied to the structure by natural elements. Design measures have been taken to compensate and ensure that the proposed terminal will be able to withstand these forces.

Therefore, based on the information above, it is the opinion of the proponent that the effect of meteorology and oceanography on the project will be insignificant. As well, the cumulative effect of meteorology and oceanography on the project is expected to be insignificant.

5.4.2 Ice Climate

As mentioned earlier in the document, the construction of the causeway across the Strait of Canso has effectively stopped the flow of ice from the Northumberland Strait. This has resulted in the south side of the strait being ice free throughout the winter months. This characteristic combined with the deep water of the Strait make this an ideal location for the proposed terminal.

Therefore, based on the information above, it is the opinion of the proponent that the effect of the ice climate on the project will be insignificant. As well, the cumulative effect of the ice climate on the project is expected to be insignificant.

5.6 Monitoring and Measuring

Monitoring and measuring will be a critical component to maintaining environmental compliance during construction and operation of the proposed terminal. During marine construction activities, monitoring will be put in place to assess water quality during dredging and steel bent trestle placement.

During operation of the terminal, the primary areas for monitoring and measuring will surround coal pile runoff treatment and fugitive dust as described in Sections 5.2.7 and 5.3.1. Quarterly reports will be issued to NSDEL. The quality of ambient air downwind of the facility and the quality of the effluent will be controlled to meet the applicable criteria of NSDEL.

Water quality parameters monitored and measured will include pH, suspended solids, and metals. These parameters will be monitored through a combination of continuous monitoring equipment and grab samples. Fugitive dust will be monitored at the site boundary.

5.7 Decommissioning

While specific details for project decommissioning have not yet been developed, the decommissioning process for the land and marine based portions of the project will adhere to all applicable legislation at that time. As well, due to the straightforward nature and relatively low impact of the project, decommissioning is not expected to be overly complex.

6 ALTERNATIVES

6.1 Existing Coal Terminal in Strait of Canso

NSPI, in planning for this project, considered several alternatives to building a new marine terminal at the Point Tupper Generating Station. The first of these alternatives was to continue using the existing coal unloading site in the Strait of Canso. While this facility is being used currently, it is not suitable in the long term due to its design and cost structure. NSPI has a responsibility to the customers of Nova Scotia to provide the lowest cost option for our operations with appropriate environmental controls. The proposed marine terminal at Point Tupper satisfies both of these responsibilities to a much greater degree than the continued use of the existing site.

In keeping with this philosophy, "Expressions of Interest" and subsequent "Request for Proposals" were sent out and received back from various potential partners earlier in 2003. This process ensures that the most suitable design at the lowest cost is obtained. Logistec Corporation was the successful developer based on these criteria and will be building, owning, and operating the proposed marine terminal.

6.2 International Pier

As stated previously, NSPI requires two ports due to transport and security reasons. Once the decision was made to move away from using the existing port in the Strait of Canso, the question arose as to whether the International Pier could be used as the coal terminal for the Point Tupper and Trenton Generating Stations as well for the Point Aconi and Lingan Generating Stations. The International Pier is not suitable as the primary unloading terminal for these generating stations due to its distance from them. As well, if the International Pier were to become unavailable for whatever reason, NSPI would need a backup terminal to supply the Point Aconi and Lingan Generating Stations. The proposed marine terminal at Point Tupper is again the best option in light of these possibilities.

7 SUMMARY

NSPI and Logistec believe that the proposed marine coal terminal is a positive step forward for the development of the Strait of Canso "Superport". The Strait's proximity to major ocean shipping routes, ice-free deep-water characteristics, and existing zoning laws make this location an ideal site for this terminal. In addition to choosing an appropriate site such as this, NSPI and Logistec have designed the terminal from the outset to minimize the potential impact to the surrounding environment. As well, public consultation took place prior to registration enabling the sharing of information between members of the local community and the proponents. The factors detailed above support the decision to allow the project to move forward.

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APPENDIX 1 – Public Consultation Records

Zoning Notice of Public Hearing and Newspaper Article
Open House Photos, Takeaway Pamphlet, and Notice

MUNICIPALITY OF THE COUNTY OF RICHMOND

Notice of Public Hearing

West Richmond Plan Area Municipal Planning Strategy and Land Use By-Law

Monday , May 29, 2000 at 6:30 p.m.
Point Tupper Heritage Museum

That the Municipality of the County of Richmond intends to consider and, if deemed advisable, adopt a new Municipal Planning Strategy and Land Use By-Law for the West Richmond Plan Area. These documents would replace the existing Municipal Planning Strategy and Land Use By-law for the West Richmond Plan Area. The Land Use By-law and Planning Strategy apply to all lands within the boundary of the West Richmond Plan Area as shown on the map below.

Copies of the Municipal Planning Strategy and Land Use By-law may be inspected by interested persons at the Municipal Office in Arichat or at the Rural Cape Breton District Planning Commission office at 32 Paint Street, Port Hawkesbury, between the hours of 8:30 a.m. and 4:30 p.m., Monday to Friday excluding statutory holidays. It is also available on our website at www.rcbplan.ns.ca

Dated at Arichat, Nova Scotia,May 12, 2000.
Louis Digout

Notice of Public hearing on Zoning

Richmond County adopts new land-use bylaw

Wants to ensure better use of industrial land

BY NANCY KING
CAPE BRETON POST

POINT TUPPER – Richmond County has adopted a new land use bylaw and planning strategy for the western part of the county, with the intention of ensuring better use of its industrial land.

A public hearing and special council session were held in Point Tupper this week to discuss and adopt the changes. This planning area serves the region which includes Point Tupper, Port Malcolm, and Port Richmond.

Following the adoption of the new plan, Richmond Warden Richie Cotton said it is an important development as industries are taking a serious look at locating in the Strait area.

"The industrial park is now zoned in such a manner to utilise the land to its best possible use," Cotton said. "It gives us control. We're making sure that no speculators go in there."

Only industries which need access to port facilities will be able to locate along the deep, ice-free port, in an effort to better use that resource.

Among the industries already located in the area are Stora Enso, Statia Terminals, US Gypsum, Sable Offshore Energy gas fractionation plant, Nova Scotia Power plant, as well as salt domes.

Dawn Sutherland of the Rural Cape Breton District Planning Commission says the plan's focus is to ensure that suitable industrial activity occurs in conjunction with the Strait of Canso marine facilities, but also to respect the residential nature of the remaining communities and the necessary protection of the Landrie Lake Watershed.

The plan also deals with the joint park, and allows for subdivision into one-acre lots, where previously only five-acre lots were available.

"Most companies in the light industrial park don't need five acres of land," Cotton said.

Better planning future development is an important step in better use of resources, the warden said.

"We're controlling it to a certain extent," he said. "A lot of people are taking an international look at the Point Tupper/Bear Head, Melford area, and the whole Strait area. Now we can put this information out to everyone working with us, including the Strait-Highlands Regional Development Agency, the Nova Scotia and federal governments, and the proponents interested in the Strait area."

Sutherland noted that the plan also protects those who continue to live in the small West Richmond Communities such as Point Tupper, where there is now approximately 10 homes.

"It respects the community's wishes to continue to make Point Tupper their home," she said.

Whiteside resident Vicky Janssen was the lone person to make an oral submission during the public hearing. She asked whether it may be possible in the future to establish a small park in the Bear Island area to recognize the community of Point Tupper and the history of the area.

John Bain of the planning commission said the zoning does not prevent that from happening.

Newspaper Article on Zoning Process

Nova Scotia Power Incorporated Open House Panel Display

Logistec Stevedoring Atlantic Corporation Open House Panel Display

Open House Takeaway Pamphlet

Project Description

- Nova Scotia Power and Logistec are working to construct a Marine Coal Terminal at the Point Tupper Generating Station on the Strait of Canso.
- This project will consist of two components: a marine terminal and a land-based coal storage/transfer facility.
- This facility will serve as the offshore coal terminal for NSPI's generating stations, primarily for Point Tupper and Trenton.
- Construction to begin in early 2004, completed in the spring of 2005.

Nova Scotia Power - an Emera Company

- NSPI transmits, generates and distributes 97% of the province's electricity.
- Installed generating capacity of 2,232 megawatts of thermal, wind and hydro power.
- The company is committed to providing its 450,000 customers with a safe and reliable energy source.
- We have over 1,800 employees.
- NSPI is the largest subsidiary of Emera, a diversified, regional energy company.

Point Tupper Generating Station

- 61 full-time employees
- Commissioned in 1973
- Fuel: Coal/Oil
- Converted in the mid 1980's from oil to coal
- 150 MW nominal rating
- NSPI currently imports coal to the Strait area

Environmental Assessment

The proposed Point Tupper Marine Terminal is currently undergoing an Environmental Assessment (EA) under the Federal and Provincial Environmental Assessment Acts. The Federal government has declared that the project will be subject to a "Screening" while the Province has declared the project a "Class I Undertaking". In order to gain efficiency in the process, the two levels of government have agreed to the production of a common report and a coordinated approval timeline. NSPI and Logistec are currently in the process of developing the EA report. As well, opportunity for the public to comment on the project is an important part of both EA processes. Therefore NSPI and Logistec are initiating this process by holding an Open House. This public consultation will continue through the approval timeline and will be taken into consideration by the Federal and Provincial Governments in making their respective decisions on the project.

Marine Based Environmental Components

Fish Habitat

- Federal Fisheries Act Focuses on Habitat Protection
- Habitat Assessment was carried out earlier this year
- Fish Habitat present but of "Marginal Quality"

Navigable Waters

- Federal Navigable Waters Approval Process being followed
- Terminal designed to be compatible with navigation in Strait and other existing port facilities

Marine Construction

- Project designed to minimize the disturbance of marine sediment
- Marine sediment will be disposed of on land in an approved landfill

Land Based Environmental Components

Dust Suppression Controls

- Enclosed In-haul Coal Conveyor
- Shuttle Conveyor and Dust Tubes
- Water Misters Mounted on Shuttle Conveyor
- Mobile Water Truck on-site

Wastewater Treatment

- New coal storage pad will be lined
- Coal pile drainage designed to divert all runoff to wastewater treatment facility
- Wastewater treated to adjust pH and remove suspended solids
- Wastewater effluent will meet all regulations

Project Summary

- Well Designed Project using Proven Technology
- Project Designed in an Environmentally Responsible Manner
- All Regulatory Approval Processes being Followed
- Significant Contribution to Strait Industrial Economy
- Multi-million Dollar Investment
- Provides NSPI with Flexibility for Future

Open House Takeaway Pamphlet (cont)

Community Open House

Point Tupper Coal Terminal

Nova Scotia Power and Logistec invite you to attend a community open house to learn about the development of a new marine coal terminal at Point Tupper.

Friday, October 24th 2003,
4:00 pm - 8:00 pm
and
Saturday, October 25th
10:00 am - 3:00 pm

Nautical Institute Theatre
Nova Scotia Community College
Strait Area Campus
226 Reeves Street
Port Hawkesbury

Please join us to learn more about this project.

LOGISTEC

NOVA SCOTIA POWER
An Emera Company

Open House Newspaper Notice

APPENDIX 2 – Accidents and Malfunction Contingency Plan

Point Tupper Coal Terminal
Accidents and Malfunction Contingency Plan

1. EMERGENCY RESPONSE

1.1 Introduction

The purpose of this section is to outline Logistec's response procedures in the event of an accident, fire, collision or spill of a hazardous substance. The procedures describe the steps to be taken to minimize the risk and damage from these occurrences as well as outline who should be contacted in each case.

Upon notification, the Harbor Master may implement the Port Authority Emergency Response Procedures.

In some cases, Logistec management will be informed that the Port Authority has designated an On-Scene-Commander who will immediately assume control and command of the incident. Should this occur, Logistec will supply a management representative to provide whatever assistance is required by the On-Scene-Commander.

Some emergency may require coordination between Logistec, the On-Scene-Commander of the Port Authority, Transport Canada or other agencies responding to an emergency situation. A list as follows will contain the names of individuals designated to act on behalf of Logistec and to provide the assistance requested by those in charge of the emergency response efforts.

LOGISTEC'S COMMAND INDIVIDUALS		
NAME	**HOME**	**CELLULAR**
Operations director		
Supervisor 1		
Supervisor 2		
Supervisor 3		

Note: Contact information will be updated prior to the commencement of operations

1.2 Accidents

Accidents are classified into three types:

1) MINOR ACCIDENT
2) MAJOR ACCIDENT
3) FATALITY

Following are the EMERGENCY RESPONSE PROCEDURES for each type of ACCIDENT.

MINOR ACCIDENTS

PROCEDURE

1. Employee is to notify supervisor of the accident.

2. If FIRST AID is required the employee shall proceed to the nearest FIRST AID STATION. All First Aid incidents are to be recorded on the First Aid Report Form for review by the Occupational Health and Safety Committee. First aid kits are located in the following locations:

   - Logistec's site office office at ….
   - NSPI Generating Station at …

3. The Employee is responsible to report an accident or injury to the Superintendent so that appropriate Workmen's Compensation Reports can be filled out. All Forms should be signed by the employee before they can be submitted to the Workmen's Compensation Board. If the form does not have the employee signature, a copy must be sent to WCB within five days of the accident as per WCB guidelines.

MAJOR ACCIDENTS

PROCEDURE

IMMEDIATE ACTION

1. **Phone 911 .**

2. Do not move accident victim unless there is the risk of further injury and make them as comfortable as possible.

SECONDARY ACTION

1. Notify Logistec Superintendent who will notify the Operations Manager and the Logistec Safety Committee Representative. (See the Management Call List at the end of this section)

2. Contact the applicable government agency, either Canadian Coast Guard, Marine Safety Division at 564-7752 or Human Resources Development Canada (HRDC) at 1-506-851-6644 . (Both numbers are monitored 24 hours).

3. Do not disturb the accident scene until the on-scene investigation is completed unless there is the risk of further injury to the accident victim or damage at the accident scene. If it is necessary to disturb the accident scene, keep these disturbances to a minimum.

FATALITY

IMMEDIATE ACTION

1. **Phone 911.**

2. Contact the applicable government agency, either Canadian Coast Guard, Marine Safety Division at 564-7752 or Human Resources Development Canada (HRDC) at 506-851-6644. (Both numbers are monitored 24 hours).

3. Do not disturb the accident scene until authorized by the investigating Government agencies, unless there is the potential of injury to other employees or further damage at the accident scene. If it is necessary to disturb the accident scene, keep these disturbances to a minimum.

SECONDARY ACTION

1. Notify immediate Logistec Superintendent who will notify the Logistec Operations Manager, Logistec Manager, Health & Safety and the Logistec Safety Committee Representative. (See the Management Call List at the end of this section.)

1.3 Fires

There are three classifications of fires:

1) MINOR FIRE
2) MAJOR FIRE
3) SHIPBOARD FIRE

Following are the EMERGENCY RESPONSE PROCEDURES for each type of FIRE:

MINOR FIRES

PROCEDURE

1. Shout FIRE to ensure everyone is made aware of the fire.

2. If the FIRE is small, extinguish the fire using a FIRE EXTINGUISHER or other available FIRE FIGHTING EQUIPMENT for which you are trained.

3. Once the FIRE has been put out, notify your Superintendent of the incident so it can be investigated by the appropriate member of Management.

4. If the FIRE cannot be controlled with available FIRE FIGHTING EQUIPMENT, the FIRE is to be treated as a MAJOR FIRE.

MAJOR FIRES

PROCEDURE

IMMEDIATE ACTION

1. Shout FIRE to ensure everyone is made aware of the fire.
2. Pull the nearest FIRE ALARM BOX.
3. Phone 911.
4. Contact Superintendent and evacuate the building immediately to the designated assembly area for a check of personnel.

SECONDARY ACTION

1. Contact one of the members of Management noted in the Management Call List at the end of this section.

SHIPBOARD FIRES

PROCEDURE

IMMEDIATE ACTION

1. Shout FIRE to ensure everyone is made aware of the fire.
2. Notify shipboard personnel of fire.
3. Phone 911.
4. Evacuate all shore labour from vessel to a safe area for a check of personnel.
5. The Port Authority Security Office will implement the Port Authority call-out procedures. The Port Authority On-Scene-Commander will assume command of the fire.

SECONDARY ACTION

1. Contact one of the members of Management noted on the Management Call List at the end of this section.
2. Contact Canadian Coast Guard, Marine Safety Division at 24 Hour Emergency Number **564-7752**.

1.4 Collisions

COLLISION INVOLVING A VESSEL

PROCEDURE

IMMEDIATE ACTION

1. Evacuate all shore personnel to a safe area.

2. Communicate with the vessel to inquire about the situation.

3. Communicate with the Port Authority Security Office who will implement the Port Authority call-out procedures. The Port Authority On-Scene-Commander will assume command of response measures if appropriate.

SECONDARY ACTION

1. Contact one of the members of Management noted on the Management Call List at the end of this section.

2. Contact Canadian Coast Guard, Marine Safety Division at 24 Hour Emergency Number **564-7752**.

1.5 Dangerous Goods Occurrences

Following are the EMERGENCY RESPONSE PROCEDURES for Dangerous Goods Occurrences.

A Dangerous Goods Occurrence means an occurrence where any hazardous material is released, leaks or appears to be leaking from the container or package and where it may constitute a hazard to life, property or the environment. Time is a key element in containing a discharge and the speed with which the organisation or employee activates a response plan is of utmost importance.

DANGEROUS GOODS OCCURRENCES

PROCEDURE

IMMEDIATE ACTION

1. Clear the area if personnel is at risk and notify Superintendent.
2. Phone 911 in the case where the occurrence creates a hazard for people.
3. Stop the loss of product and contain the spill if possible and if it is safe to do it.
4. Notify the NSDEL

SECONDARY ACTION

1. Notify Logistec Superintendent who will notify the Logistec Safety Committee Representative.
2. The Logistec Superintendent will provide any details related to the cargo (MSDS).
3. If the occurrence is shipboard, notify the Canadian Coast Guard, Marine Safety Division at 24 hour emergency number **564-7752**.
4. Arrange for clean-up of the spill.

1.6 Call lists

MANAGEMENT CALL LIST		
NAME	**HOME**	**CELLULAR**
Robert Kazamel (operations manager)	**849-5088**	**578-2844**
Aage Roren (general manager)	**902-479-3349**	**902-471-4144**
Paul Doiron (vice-president)	**506-849-8031**	**506-647-9410**
Pierre Duquet (health and safety)	**450-652-0465**	**514-212-1887**
Jean Paquin (environment)	**450-922-2929**	**514-409-4039**
Terry Toner (NSPI, environment)	**902-865-9353**	**902-471-1256**

VESSEL AGENTS		
NAME	**PHONE**	**CELL**
Atship (business)	**902-468-3451**	
Mike Fleckney	**564-9752**	**902-578-7879**
Ed Rafferty	**842-0465**	**578-6105**

EXTERNAL AUTHORITIES		
NAME	**PHONE**	**2ND PHONE**
Fire Department	**911**	
Police	**911**	
Coast Guard Office Environmental Emergencies	**1-800-565-1633**	
Coast Guard Marine Communications	**564-7751**	
Coast Guard Station Coordinator	**564-7752**	
Harbor Master (Mr Seward Benoît)	**625-1973**	**631-1486**
Nova Scotia Dept. of Environment And Labour (Ms Sharon Carter, Mr Lorne MacNeil)	**625-0791**	**1-800-565-1633 (after business hours)**
Human Resources Development Canada (HRDC)	**1-506-851-6644**	

2. CONTROL OF DUST

2.1 Introduction

This section covers measures to respond adequately in the event of emissions of dust at the Point Tupper Marine Terminal.

The procedure covers the property of the Marine Terminal, including the coal storage area, and is particularly intended to control emissions to off-site locations, on the water and on land.

This procedure provides response mechanisms to eliminate or reduce dust that may originate from coal handling and storage operations, especially upon conditions of high wind.

2.2 Authority and Responsibility

The Air Quality Regulations of the Nova Scotia Environment Act indicate the permissible ground level concentration for total suspended particulate (TSP). Authority and responsibility for both preventive and response measures is as follows.

1. The Shift Superintendent has the authority to control all activities that are part of this procedure. He takes action based on his training and his judgement or on the recommendation of competent resources who have knowledge of conditions on the site or the nearby area. The Superintendent is responsible for the control systems on site and must ensure that they are ready and able to be used when required.

2. All employees have the responsibility to report to the Superintendent any condition that they consider is causing or may cause excessive dusting. Where an immediate response is possible, they take the necessary action, as long as it is in accordance with acceptable practices at the site.

3. The Shift Superintendent has the authority to direct all Site activities related to this plan. He is also responsible to keep the Operations Manager informed of conditions at the site. The Operations Manager is responsible to direct any communications regarding these activities or the conditions which initiate them.

4. The Nova Scotia Department of the Environment & Labour (NSDEL) has the authority to have coal handling operations ceased if excessive dust conditions exist off-site due to these activities. They can also direct certain activities that will lead to the safe resumption of coal handling at the site.

5. The Shift Superintendent is responsible for air monitoring equipment and the reporting of the results.

2.3 Response Plan

The response plan for dust control applies whenever there is activity involving the handling and storage of coal for shipping or receiving purposes. This procedure is meant to ensure that no unacceptable dust conditions are caused off-site.

The primary means of dust control is regulating the moisture of the coal. During conditions when the moisture level is not high enough to prevent excessive dust, moisture can be added by water (or other media) sprays.

If any visible dust occurs from any of the coal handling or storage activities which may impact the nearby areas, then action must be taken to control the dust. The following applies.

1. Fixed sprays, located at specific points and meant to control dust at or near those points, will be used as necessary. These are to prevent dust before it occurs, however they will also be used to eliminate or reduce dust if it occurs.

2. Coal with a high proportion of fines will be covered with non-dusty material such as a coarser grade of coal if necessary.

3. A water truck will be used to wet down any other areas or to control wind blown dust from these other sources.

4. Spray systems will be ready and able to be used at all times during the coal handling and storage activity.

5. A calcium chloride solution will be used on areas where vehicle traffic may cause dust, especially when freezing conditions exist.

6. In the event of excessive dust, even when control measures are applied, all coal handling operations will cease until appropriate control measures are in place as necessary.

2.4 Notification and Reporting

For the purpose of notification and reporting associated with the procedures of this plan, the following applies.

1. All conditions that are causing or may potentially cause excessive dust will be reported to the Shift Superintendent.

2. The Superintendent or his designate will record all conditions noted in a shift log.

3. The Superintendent will immediately report any severe or extended conditions to the Operations Manager; the Operations Manager will notify NSDOE of any condition that may create a problem off-site.

4. Quarterly reports of environmental monitoring will be issued to NSDEL. The report will include relevant information on wind data and dust monitoring.